Papers from Dr. Th. Mortensen's Pacific Expedition 1914—16.

XIX.

New Zealand Mollusca.

(With Plates I—II and 24 text-figures.)

By

Nils Hj. Odhner, Stockholm.

Our knowledge about the molluscan fauna of N. Zealand must be admitted to be rather satisfactory thanks to the extensive works made by collectors and investigators from within and without the country. The high state of the New Zealand malacozoology was manifested in 1913 by the appearance of Suter's Manual of New Zealand Mollusca, giving a complete account of the composition of the fauna up to date of issue and invaluable to students on the same subject, on account of its modern systematic arrangement and accurate descriptions of every species.

This manual will certainly for a long time be a foundation and also a stimulation to further research with the view to bring New Zealand malacozoology to a still higher completion. As a contribution to this task, taken up by resident authors, I think the present publication may count upon interest. It deals with the abundant collections of mollusca brought home by Dr. Th. Mortensen from his exploration journey to New Zealand in 1914 and 1915. They were gathered in a great number of localities, most of them situated all round the North Island; a couple of yielding hauls were also made in the South Island, and further towards the South the collecting work was concentrated to Stewart, Auckland and Campbell Islands. A summary of all the localities from where marine mollusca were obtained begins the account, and in the following text a station number refers to this list.

In this paper are recorded 379 species of mollusca, and, among these, 29, all marine forms, are described as new to science. Most of them (19) were found on the coast of the North Island, and of these 9 come from its northernmost part (localities 1—5), which seems to have been but little explored. At Auckland Island 6 new forms were dredged, from Campbell Island 4 are described and from Stewart Island 1. Beside these new species there are added 6 species new to N. Zealand, which belong to the E. Australian and Tasmanian fauna.

Three new genera have been created (viz. *Liracraea, Runcinella, Neogaimardia*), and 7 previously extra-zealandian genera are now recorded from the Dominion, viz. *Fossarus*, *Prosipho, Heterocithara*, *Asperdaphne*, *Eucyclotoma, Cerithium*, and *Spaniorinus*. *Liracraea* and *Runcinella* are endemic genera; the latter is most nearly related to the Atlantic and Mediterranean *Runcina; Fossarus* and *Neogaimardia* are common to the Peronian region of E. Australia and Tasmania, and the latter is not known outside of this region. *Heterocithara* and *Asperdaphne* have recently been created (1922) by Hedley for Australian Turrid genera; *Eucyclotoma* Boettger, also accepted by Hedley, and *Cerithium* have a wide Indo-Pacific range. *Prosipho* is subantarctic, and *Spaniorinus,* constituted by Dall 1900, comprises only fossil forms from the Tertiary of N. America and Europe.

Three families previously not represented in the New Zealand fauna are added here: *Fossaridae* (for *Fossarus*, of which 4 new and one known species are reported), *Runcinidae* (for *Runcinella*) and *Galeommatidae* (for *Spaniorinus*).

As to the nomenclature, which offers great difficulties and is still in a state of confusion, I have followed Suter in all cases where his names have not been subsequently corrected or changed, according to nomenclatorial rules. A revision has proved to be necessary, and, above other authors, Iredale has fulfilled this task with his "Commentary on Suter's Manual of the New Zealand Mollusca", which forms a valuable and indispensable complement to Suter's work. Iredale's corrections were accepted in this paper, whenever they had been clearly proved to be well founded and inevitable from nomenclatorial or systematical points of view. In some cases, however, I have thought it better to keep the old names of genera, until convincing reasons for a changement shall have been adduced. Subdividing and nominating at random for the single reason that a genus is comprehensive anticipates a critical disentangling of the taxonomic questions, which must be based on morphological facts obviously stated, and is, to speak with Pilsbry in a similar connection, "neither good science nor sound ethics" and only encumbers the subject with meaningless names.

In illustrating the new species I have had a valuable help in Mr. G. Liljevall, whose skilful hand has drawn plate-figs. 3, 15, 24, 26, 28 and 36—39, as also the text-figures 1, 2, 23.

The collections belong to the University Museum of Copenhagen.

List of Localities of Marine Mollusca.

North Island:

1. Three Kings Islands, 65 fathoms, hard bottom, dredge. 5/1 1915.
2. Cape Maria van Diemen, 10 miles N. W., 50 fms, hard bottom, dredge. 4/1 1915.
3. Cape Maria van Diemen, the coast, shaken from algae. 4/1 1915.
4. 2 miles E of North Cape, 55 fms, hard bottom, dredge. 2/1 1915.
5. North Cape, the coast, under stones. 3/1 1915.
6. Bay of Islands, 2 fms, on Fucaceae with Bryozoa and Hydroids. 1/1 1915.
7. Bay of Islands, the coast, under stones. 31/12 1914.
8. — , muddy estuary. 1/1 1915.
9. Cape Brett, the coast, on rocks among Corallinae. 31/12 1914.
10. Little Barrier Island, 30 fms, shell bottom, dredge. 29/12 1914.
11. Hauraki Gulf (North Channel, Kawaii Isl., Moko Hinau Isl., Hen & Chickens Isl., Puhoi Rock).

11a. North Channel, Kawaii Isl., 10 fms, hard bottom. 29/12 1914.
11b. Moko Hinau Isl., 5 fms. 30/1 1914.
11c. Hen & Chickens Isl., 50 fms, hard bottom, dredge. 30/12 1914.
11d. Puhoi Rock, the coast, under stones. 29/12 1914.

12. Ponui Island, the coast, under stones. 24/12 1914.
13. Tiri-Tiri, 15 fms, mud, dredge. 29/1 1915.
14. Takapuna Beach, the coast, under stones. 23/12 1914.
15. Rangitoto, the coast, under stones. 27/12 1914.
16. Colville Channel, 35 fms, sand, mud, dredge. 21/12 1914.
17. Slipper Island, the coast, at low water. 20/12 1914.

18. Off White Island, 37° 40' S, 177° 1' E, 55 fms, muddy sand, dredge. 19/12 1914.
19. Mahia Peninsula, the coast, under stones, at low water. 18/12 1914.
20. Portland Island, the coast, at high water, under kelp, wood etc. 18/12 1914.
21. Cape Kidnappers, the coast. 31/1 1915.
22. Wellington Harbour, 5—10 fms, hard bottom, dredge. 16/2 1915.
23. Plimmerton, the coast. 15/1 1915.
24. New Plymouth, 8 fms, hard bottom, dredge. 12/1 1915.
25. Off Albatross Point, 25 fms, sand, dredge. 11/1 1915.
26. Manukau, the coast. 11/1 1915.
27. Onehunga, the coast. 10/1 1915.
28. Kaipara, the coast. 9/1 1915.

South Island:

29. Queen Charlotte Sound, 3—10 fms, hard, locally muddy bottom, dredge. 20/1 1915.
30. Akaroa Harbour, the coast, under stones. 27/12 1914.

Stewart Island:

31. Paterson Inlet, the coast. 18/11 1914.
32. — , 5—15 fms, mud, dredge. 17/11 1914.
33. Pegasus Bay, the coast, under stones, at low water. 26/11 1914.
34. Port Pegasus, the coast, under stones. 22/11 1914.
35. — , 25 fms, clayish mud, dredge. 20/11 1914.
36. Halfmoon Bay, the coast. 19/11 1914.
36a. — 5—7 fms, sand. 19/11 1914.

Auckland Island:

37. Port Ross, the coast, under stones, at low water. 26-27/11 1914.
37a. Port Ross, 10 fms, sand, algae, dredge. 25/11 1911.
38. Normans Inlet, the coast. 28/11 1914.
39. Amokura Harbour, the coast, at low water. 30/11 1914.
40. Carnley Harbour, the coast, under stones. 29/11 1914.
41. — , Masked Island, Figure 8 Island. 2-3/12 1914.

42. Carnley Harbour, Coleridge Bay, 25 fms, sandy mud, dredge. 4/12 1914.
43. Carnley Harbour, 45 fms, sandy mud. 6/12 1914.

Campbell Island:

44. Perseverance Harbour, the coast, under stones, at low water. 9-10/12 1914.
45. Perseverance Harbour, 20 fms, sandy mud, dredge. 10/12 1914.

Species Obtained.

Polyplacophora.

Lepidopleurus inquinatus Reeve (?*iredalei* Ashby).
(Pl. I, figs. 1, 2.)

South Island: 29, 3 sps., l.[1] 10. — Stewart Island: 31, 4 sps., l. 12. — 32, 1 sp., l. 13. — Auckland Island: 37a, 1 sp., l. 10. — 43, many sps., l. 8. — Campbell Island: 45, 2 sps., l. 9.

Remark. There is some variation in the sculpture in this species, the grains being somewhat larger than usual, by which their radial arrangement at the lateral areas may be less distinct on account of their crowded disposition; this is obvious in the specimens from Campbell Island (fig. 1). Mr. Ashby (1921 and 1923a) has discussed identity and nomenclature of this species.

Ischnochiton maorianus Iredale (=*longicymba* Quoy & Gaimard, non Blainville).

North Island: 7, 4 sps., l. 30. — 11a, many sps., l. 38. — 11d, many sps., l. 26.5. — 17, many sps., l. 35. — 19, many sps., l. 35. — South Island: 30, 3 sps., l. 34. — 36, 2 sps., l. 12. — 34, many sps., l. 22. — Auckland Island: 37, many sps., l. 16. — 39, 1 small sp. — 41 (Masked Island, the coast), 1 small sp. The confusion between the present species and *Stenochiton longicymba* Q. & G. has been discussed by Ashby, 1923 (b).

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[1] l., h., d., br. = abbreviations for length, height, diameter, breadth. The following number indicates the measure in mm.

Ischnochiton luteoroseus Suter.

North Island: 11a, 3 small sps. — 11b, 4 sps., l. 6.5. — Auckland Island: 37a, 3 sps., l. 7. — 42, 1 sp., l. 8.

Ischnochiton campbelli (Filhol) (=*parkeri* Suter).

Auckland Island: 37, 1 sp., l. 12.5. — 40, many sps., l. 17. —41, Figure 8 Island, the coast, under stones, at low water, 1 sp., l. 10. — Campbell Island: 44, many sps., l. 19. — 45, 1 sp., l. 13.5.

Callochiton empleurus (Hutton).

Campbell Island: 45, 6 sps., l. 9. They are probably not full-grown, since there are 6—7 pits on the sides of the lateral areas. Suter has not stated the number of slits in the terminal valve, because of the scarceness of his material. They amount to 14. In the anterior valve there were about 23 irregularly disposed ones. Miss Mestayer (1921) examined a specimen from Foveaux Strait and found 11 slits in the posterior valve and 14 in the anterior.

Callochiton mortenseni n. sp.

(Text-figs. 1, 2).

Shell ovate, dark-brown, shining, smooth, bluntly keeled dorsally, slightly convex at the lateral slopes. Anterior valve a little broader than the posterior one, with a few concentric growth-lines (in the one specimen with 4 concentric regularly distant sulci), otherwise smooth and showing only microscopic radiating striae and impressed dots which are densest towards the margin. Intermediate valves beaked, with elevated lateral areas, totally smooth except for lines of growth (and occasional impressed dots towards the margins, and furrows: 4 concentric ones in one specimen), microscopically striated longitudinally. Posterior valve with a premedian mucro; its central area separated, by means of straight lines, from the posterior elevated area, which has a straight or slightly concave slope. All valves porous, the pores appearing as microscopical regular dots all over the surface. Eyes in a small number, occupying a median ray on the lateral areas, most obvious in their upper parts. Girdle narrow, rusty brown, lighter at the margin, with close elongate scales and fringed with short acicular ones. Interior of the valves crimson; anterior valve with 16 slits, posterior one with 12, median valves with 4 or 5; teeth solid, propped outside, eaves porous, sutural plates united, sinus shallow, broad. — Gill cordon extending from the anterior corners of the foot to near the foot end.

Locality: Campbell Island, 45, 2 sps., max. l. 13, br. 8.5 mm.

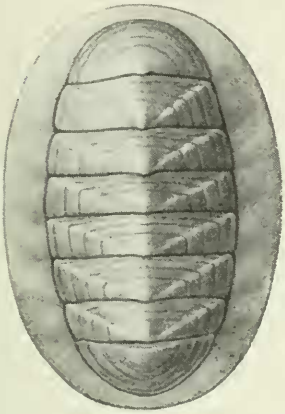

Fig. 1. *Callochiton mortenseni* n. sp × 4.

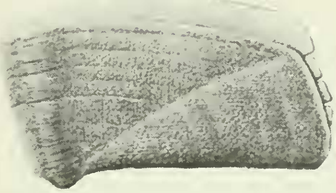

Fig. 2. Right half of an intermediate valve of *Callochiton mortenseni* n. sp. × 10.

Compared with *C. steinenii* from South Georgia, which has a similar colour, the present species shows much smaller and denser girdle-scales, as well as completely smooth, not granulose, and distinctly microscopically striated valves; in the latter respect it differs also from *C. platessa*, in which a tendency to granulation of the lateral and central areas appears. The number of slits of the intermediate valves (in *C. steinenii* 2, in *C. platessa* 3) is another point of distinction.

Callochiton sulculatus Suter.

North Island: 11a, 1 sp., l. 10. — Colour coralline red, lateral areas white clouded; 6th and 7th valve of a whitish colour (except the red apices) which occupies also the adjacent part of the girdle. In its sculpture the present specimen shows the peculiarity of having the sulci of the lateral areas most distinct on plate 6 and 7, 2 and 1.

Plaxiphora caelata (Reeve).

North Island: 2, 3 sps., l. 7. — 9, many small sps., l. 15.

Plaxiphora aurata (Spalowsky) (=*superba* (Pilsbry).

North Island: 26, 2 small sps. — Auckland Island: 37 numerous sps., l. 70. — 40, 2 sps., l. 57. — 41, 1 sp., l. 30. — 39, 1 small sp. — Campbell Island: 44, many sps., l. 90.

Acanthochiton zelandicus (Quoi & Gaimard).

North Island: 7, many sps., l. 17. — 11a, 1 sp., l. 16. — 12, 7 sps., l. 12. — 15, 2 sps., l. 15. — 19, 2 sps., l. 13. — 28, 3 sp., l. 19. — South Island: 29, 4 sps., l. 17. — Stewart Island: 31, many sps., l. 30. — 33, 1 sp., l. 13. — 34, 4 sps., l. 32. — Mr. Ashby (1920) records this species from N. S. Wales.

Cryptoconchus porosus Burrow.

North Island: 22, 2 sps., l. 35. — South Island: 29, 5 sps., l. 34. — Stewart Island: 31, 2 sps., l. 40. — Stewart Island, without definite locality, 20 fms, hard bottom, 16/11 1914, 2 sps., l. 50.

Craspedochiton rubiginosus (Hutton).

North Island: 1, 1 sp., l. 16. — 10, 2 sps., l. 13. — 11a, 6 sps., l. 12. — 13, 1 sp., l. 18. — South Island: 29, 6 sps., l. 18. — Stewart Island: 32, 1 sp., l. 7.

Loboplax violaceus (Quoy & Gaimard).

North Island: 11a, 7 sps., l. 38. — 14, 1 sp., l. 24. — 22, 2 sps., l. 58. — 23, 1 sp., l. 28. — For the name see Ashby 1920.

Sypharochiton pellisserpentis (Quoy & Gaimard).

North Island: 7, 1 sp., l. 18. — 11a, many sps., l. 16. — Stewart Island: 31, 2 sps., l. 27.

Var. *sinclairi* (Gray).

North Island: 12, 3 sps., l. 14. — 15, 1 sp., l. 12. — 19, 2 sps., l. 13. Mr. Ashby (1922) considers *Sypharochiton sinclairi* as a smooth variant of *S. pellisserpentis*.

Amaurochiton glaucus (Gray) (=*Chiton quoyi* Deshayes).

North Island: 7, 5 sps., l. 20. — 11a, 1 sp., l. 22. — 11d, 3 sps., l. 25. — 12, some sps., l. 18. — 17, many sps., l. 40. — 19, many sps., l. 40. — South Island: 30, many sps., l. 23. — Stewart Island: 31, many sps., l. 25.

Rhyssoplax aerea (Reeve).

Auckland Island: 40, 1 sp., l. 20.

Rhyssoplax canaliculata (Quoy & Gaimard).

North Island: 17, 1 sp., l. 27. — 22, 1 sp., l. 15. — South Island: 29, many sps., l. 18.5. — Auckland Island: 40, 3 sps., l. 40.

Rhyssoplax huttoni (Suter).

North Island: 15, 2 sps., l. 25. — 17, 4 sps., l. 35. — 19, 5 sps., l. 35. — South Island: 30, many sps., l. 35. — Stewart Island: 31, numerous sps., l. 20.

Rhyssoplax suteri (Iredale) (=*Chiton stangeri* Suter).

North Island: 11a, 1 sp., l. 6.2. Colour red, with white apices and white spots on the lateral areas; girdle white and red banded.

Eudoxochiton nobilis (Gray),

North Island: 17, 1 sp., l. 50. — 23, 1 sp., l. 55. — Stewart Island: 34, 1 sp., l. 73.

Onithochiton marmoratus Wissel (=*nodosus* Suter).

North Island: 17, 1 sp., l. 8.

Onithochiton neglectus Rochebrune (=*O. undulatus* Quoy & Gaimard).

North Island: 17, 7 sps., l. 29. — South Island: 29, 3 sps., l. 10. — Stewart Island: 31, 6 sps., l. 19. — 34, 4 sps., l. 33. — Auckland Island: 37, 4 sps., l. 26 (+ var. *subantarcticus*). — 40, many sps, l. 35 (+ var. *subantarcticus*). — 41, Masked Island, under stones at low water, 1 sp., l. 23, and on rocks with Melobesia, 2 small sps. — 1 mile S of Auckland Island, on floating

Lessonia, 28/11 1914, 4 sps., l. 23. — Campbell Island: 44, many sps., l. 45 (+ var. *subantarcticus*). — Mr. Iredale (1915) considers *subantarcticus* as a species of its own.

Gastropoda.

Fam. **Acmaeidae**.

Acmaea campbelli (Filhol).

Campbell Island: 44, many sps., l. 5.5; 7.2 (dead), on Macrocystis.

Acmaea cantharus (Reeve).

Stewart Island: 36, 2 sps., l. 7. — Auckland Island: 37, many sps., l. 10. — 38, 1, l. 13. Iredale (1915, p. 429) considers this form as not distinct from *A. pileopsis*.

Acmaea unguis-almæ Lesson (=*fragilis* Chemnitz).

North Island: 17, many sps., l. 12. — 19, 2 sps., l. 12.5.

Acmaea pileopsis (Quoy & Gaimard).

North Island: 17, some sps., l. 14. — Auckland Island: 37, numerous sps., l. 33. — 39, many sps., l. 30. — 1 mile E of Auckland Island, on floating Lessonia, 28/11 1914, some small sps. — Campbell Island: 44, 1 sp., l. 13.5.

Acmaea helmsi Smith (=*septiformis* Quoy & Gaimard by Suter).

Auckland Island: 37, numerous sps., l. 19. — 39, many sps., l. 8.3. — Campbell Island: 44, 6 sps., l. 19.

Patelloida (*Acmaea*) *stella* (Lesson).

North Island: 4, 1 dead shell, l. 19. — 9, many sps., l. 8 (var. *corticata* Hutton).

Fam. **Patellidae**.

Nacella fuegiensis (Reeve).

Auckland Island: 37, 8 sps., l. 13. — Campbell Island: 44, many sps., l. 46.

Cellana (Helcioniscus) denticulata (Martyn).

Stewart Island: 31, many sps., l. 51.

Cellana (Helcioniscus) ornata (Dillwyn).

North Island: 19, 4 sps., l. 30. — South Island: 30, many sps., l. 24. — Stewart Island: 31, many sps., l. 40. — 36, many sps., l. 31.

Cellana (Helcioniscus) radians (Gmelin).

North Island: 11d, 1 sp., l. 14. — 17, some sps., l. 20. — 19, many sps., l. 50, (+ var. *flavus* Hutton, many sps., l. 44, and other var.) — Stewart Island: 31, 2 sps., l. 46. — 36, 2 sps., l. 36. — Auckland Island: 37, 3 sps., l. 36 (+ var. *decorus* Philippi; many sps., l. 70). — 40, 1 sp., l. 29. — Campbell Island: 44, 1 sp., l. 51 (+ var. *decorus*, 3 sps., l. 59).

Cellana strigilis (Hombron & Jacquinot)
(=*Helcioniscus redimiculum* Reeve).

Stewart Island: 36, 8 sps., l. 30.

Cellana (Helcioniscus) stellifera (Gmelin).

Stewart Island: 31, 1 sp., l. 25.

Fam. **Scissurellidae.**

Schismope brevis Hedley.

North Island: 3, 1 small sp. — 9, 1 sp., diam. 0.9 mm.

Fam. **Haliotidae.**

Haliotis australis Gmelin.

North Island: 17, 2 sps., l. 53. — 19, 2 sps., l. 68. — Stewart Island: 34, 1 sp., l. 53.

Haliotis iris Martyn.

Nort Island: 4, 4 sps., l. 50. — 17, 5 sps., l. 48. — 19, 8 sps., l. 71.

Haliotis virginea Gmelin.

Auckland Island: 37, 5 sps., l. 61. — 40, many sps., l. 59. 41 (Masked Island, under stones, at low water, 3/12) 2 sps., l. 50.

Fam. **Fissurellidae**.

Incisura lytteltonensis (E. A. Smith).

North Island: 3, many sps., l. 1.3 mm.

Emarginula striatula Quoy & Gaimard.

North Island: 1, 1 fragment. — 10, 2 sps., l. 10. — 11a, 2 sps., l. 8.5. — 16, 4 sps., l. 16.5.

Tugalia (Subemarginula) parmophoidea (Quoy & Gaimard).

North Island: 4, 3 sps., l. 28. — 10, 1 sp., l. 14.7. — 17, many sps., l. 35. — Island Bay, the coast, 22/1 1915, 1 small sp. — South Island: 29, 5 sps., l. 27.

Scutus ambiguus (Chemnitz).

North Island: 15, 1 sp., l. 52 (animal). — 17, 1 sp., l. 35 (animal). — South Island: 29, 2 sps., l. 9 (shell). — Stewart Island: 31, 1 sp., l. 17 (shell).

Puncturella demissa Hedley.

Stewart Island: 36a, 5 shells, l. 2.2.

Fam. **Trochidae**.

Thoristella (Trochus) chathamensis (Hutton).

Auckland Island: 37, some small sps., diam. 6.5. — Campbell Island: 44, 3 sps., d. 6.5.

Thoristella (Calliostoma) aucklandica (E. A. Smith).

Auckland Island: 40, 2 sps., d. 3.7. — 42, 1 sp., d. 6, h. 5.2 mm.

Thoristella (Trochus) oppressa (Hutton).

North Island: 19, 1 dead shell, d. 4.5.

Trochus tiaratus Quoy & Gaimard.

North Island: 11a, 1 sp., d. 14. — 25, 1 sp., d. 12. — South Island: 29, many small sps., d. 16.

Trochus viridis Gmelin.

North Island: 24, 1 sp., h. 15. — South Island: 29, 4 sps., h. 20.

Monodonta coracina (Troschel).

North Island: 19, 3 sps., d. 16. — Auckland Island: 37, many sps., d. 17.5. — 38, many sps., d. 11. — 39, 2 small sps. — 40, 4 sps., d. 12.5. — 41, Masked Island, the coast, on stones at low water, 2 sps., d. 19.

Monodonta aethiops (Gmelin).

North Island: 12, 1 sp., d. 10. — 19, many sps., h. 21. — 28, 1 sp., h. 24. — 20, some sps., h. 17.5. — South Island: 30, many sps., d. 17, h. 16.5. — Stewart Island: 31, some sps., h. 30.

Monodonta corrosa (Adams).

Auckland Island: 41, Masked Island, the coast, under stones, at low water, 1 dead shell, h. 16. — 37, many sps., h. 24.

Monodonta lugubris (Gmelin).

North Island: 17, 2 sps., d. 14. — 19, 5 sps., d. 12.

Monodonta crinita (Philippi).

North Island: 8, 7 sps., h. 13.5.

Cantharidus dilatatus (Sowerby).

North Island: 22, 3 sps., h. 6.5. — 23, 1 sp., h. 7. — South Island: 29, 4 sps., h. 8. — Stewart Island: 32, many sps., h. 8. 36a, 1 sp., h. 5.5.

Cantharidus opalus (Martyn).

North Island: 5, 1 sp., h. 43. — 24, 2 sps., h 39. — Stewart Island: 35, 1 sp., h. 44.5. — 36a, 2 sps., h. 35.

Cantharidus capillaceus (Philippi) (=*pruninus* Gould).

Auckland Island: 37, many sps., h. 18. — 38, 1 sp., h. 22. — 40, 2 sps., h. 19. — Campbell Island: 44, numerous sps., h.

22. — 45, 1 sp., h. 4.3 (without external shell layer, thus entirely nacreous, with deeper spiral striae than usually, when living on Macrocystis).

Cantharidus purpuratus (Martyn).

North Island: 4, 2 sps., h. 22. — 11a, 2 sps., h. 24. — South Island: 29, 3 small sps., h. 21.5.

Cantharidus tenebrosus A. Adams.

North Island: 12, 1 sp., h. 8. — South Island: 30, 1 sp., h. 6. — Stewart Island: 31, many sps., h. 13.

Margarella (Photinula) antipoda (Hombron & Jacquinot).

Auckland Island: 37, 4 sps., h. 9. — Campbell Island: thrown on the shore, 1 small sp.

Margarella (Photinula) decepta (Iredale).

Stewart Island: 36, 2 sps., d. 8.5. — Auckland Island: 37, many sps., d. 8, h. 7. — 40, many sps., d. 9. — Campbell Island: many sps., d. 8.5.

Gibbula fulminata (Hutton).

North Island: 2, 2 small sps.

Gibbula micans Suter.

North Island: 19, 5 sps., h. 6. — Stewart Island: 36a, 1 fragm.

Gibbula mortenseni n. sp.

(Pl. 1, fig. 3.)

Shell globose solid, finely rimate, whorls flattened, angled above, obtusely rounded below, base slightly convex, suture impressed. Sculpture consisting of spiral ridges separated by a little narrower furrows, ridges beaded on the spire, smooth on the base, their number 5 on the penultimate whorl, 10 on the base: the 3 upper furrows on the penultimate whorl with a fine intercalating thread. Colour white with red spots on the ribs set in longitudinal series, spire crimson, grooves with a light greenish nacreous lustre. Protoconch smooth, white, of 1 1/2 whorls, the following 5 whorls spirally lirate. Aperture quadrangular, oblique, iridescent and lirate within, outer lip thin, slightly indented. Columella vertical, white, with a submedian tubercle and a narrow callous reflection; no callous covering on the parietal wall. Dimensions: H. 5.5, d. 5.2 mm. Locality: Auckland Island, Carnley Harbour, 45 fms, sandy clay, 4/2 1914, 2 sps.

Gibbula scamnata Fischer.

North Island: 21, 4 sps., h. 3.8. — Stewart Island: 36a, 2 sps., h. 8.

Gibbula suteri (E. A. Smith).

North Island: 20, 1 sp., h. 3.6.

Solariella (Monilea) egena Gould.

Stewart Island: 36a, 1 sp., d. 4.

Solariella (Monilea) plicatula (Murdoch & Suter).

(=*Minotia plicatula* Murd. & Suter).

North Island: 16, many sps., d. 2.5. — 18, 1 sp., d. 2.2. — Stewart Island: 31, 2 sps., d. 4.5.

Calliostoma pellucidum (Valenciennes).

North Island: 10, 3 sps., h. 34. — 11a, 1 sp., h. 22.

Calliostoma punctulatum (Martyn).

North Island: 11a, 5 sps., h. 30. — 11b, 1 sp., h. 32. — 19, 1 sp., h. 41. — 22, 1 sp., h. 26. — 24, 1 sp., h. 23. — South Island: 29, 3 sps., h. 30.

Calliostoma tigris (Martyn).

North Island: 10, 1 sp., h. 25. — 11b, 1 sp., h. 54.

Calliostoma trepidum Hedley.

North Island: 2, 1 small specimen, h. 3, d. 2.7 mm; whorls 4. — 16, 1 empty shell, h. 2.5.

The colour and the sculpture of the present shell are entirely in accordance with the descripton and the figure given by Hedley (1907, p. 490, pl. XVI, fig. 3). Hedley describes the apex as "minute, rather tilted, unsculptured, of a whorl and a half". In the present specimens the apex has a finely reticulated sculpture consisting of fine elevated lines surrounding small oval depressions. This sculpture of the protoconch seems to be common in the genus *Calliostoma* though generally obliterated by wearing. I have observed it in *C. pellucidum,* the new *C. onustum*, and in the European *C. conulus*, and Suter mentions it in *C. tigris.* It will certainly prove to be a characteristic feature of the genus.

Calliostoma onustum n. sp.

(Pl. 1, fig. 4.)

Shell small, conic-elongate, solid, imperforate, white and nacreous. Whorls 7 1/2, flattened, separated by a shallow suture, the 2 first papillate, spirally lirate and with traces of reticulated sculpture as in *C. trepidum* (cf. above), the subsequent ones with about 5 spiral keels and longitudinal costae (18 in the last and the penultimate whorl), nodose in the points of intersection, the nodules most prominent in the 2 lowest lirae of the whorls. Last whorl angulated at the periphery; below the 5th spiral lira there are 2 thinner ones at the angle; they are limited on the base by a broad furrow; base flattened, carrying 6 or 7 coarse lirae, the outermost one almost smooth, bipartite all along, the remaining ones regularly granose. Aperture subquadrate, white and nacreous within; lower lip subcrenate, outer lip simple, columella straight, rounded below, forming a nearly right angle with the parietal wall, which does not show any trace of a callous covering. Dimensions: H. 6.6, br. 4 mm. — Locality: North Island: 2, 2 shells, the larger one with a Pagurid. The second, small specimen has a broader conic shape and 8 basal spiral cords. The reticulation of its protoconch is very distinct.

Euchelus bellus Hutton.

North Island: 7, 1 sp., h. 6. — 11d, 2 sps., h. 6.7. — 14, 2 sps., h. 6.

Fam. **Vitrinellidae**.

Brookula corulum (Hutton).

Two dead specimens of the present form, referred by Hutton to *Lissospira* but established by Iredale (1915) as a genus of its own, were found at North Island: 2, 1.1.

Fam. **Turbinidae**.

Turbo smaragdus (Martyn).

North Island: 12, many small sps. — 14, 1 sp., d. 23.5. — 19, 7 sps., h. 41, d. 42. — South Island: 30, many sps., h. 42, with *Siphonaria cookiana*.

Turbo granosus (Martyn).

Stewart Island: 35, 2 sps., h. 28.

Astraea heliotropium (Martyn).

North Island: 16, 1 sp., d. 97. — Stewart Island: 33, 2 sps., d. 85. — Stewart Island: 20 fms, hard bottom, 16/11 1914, 4 sps., d. 92.

Fam. **Umboniidae**.

Umbonium (*Ethalia*) *zelandicum* (Hombron & Jacqinot).

North Island: 5, 3 sps., d. 17. — Stewart Island: 36a, many sps., d. 16.

Fam. **Neritidae**.

Nerita melanotragus E. A. Smith.

North Island: 17, many sps., l. 23. — 19, 5 sps., l. 28.

Fam. **Cocculinidae**.

Cocculina compressa Suter.

North Island: 16, 1 sp., l. 4.5.

Fam. **Littorinidae.**

Littorina cincta Quoy & Gaimard.

North Island: 3, some small sps. — Stewart Island: 36, 4 sps., h. 11.5. — Auckland Island: 37, many sps., h. 18.

Littorina infans E. A. Smith.

North Island: Cape Maria v. Diemen, shaken from algae, some small sps., max. h. 1.3 mm, whorls 4.

Compared with specimens of this species from Sydney, sent by the Australian Museum, the samples at hand prove to be identical, as they have the same dark-brown colour with the yellow basal band appearing most clearly within the aperture. The specimens are not full-grown, and may be taken for juvenile stages of *L. cincta*, but they have a smoother incremental sculpture. The species is now for the first time recorded from N. Zealand.

Littorina mauritiana (Lamarck).

North Island: 3, some small sps. — 9, 2 small sps. — 11d, some small sps. — 19, numerous small sps., h. 11, high above the water, or in pools beneath plants. — Island Bay, Wellington, the coast, 22/1 1915, 4 small sps.

Laevilitorina antipodum (Filhol).

Campbell Island, 44, numerous sps., h. 5.

Fam. **Fossaridae.**

Fossarus ovatus n. sp.

(Pl. II, fig. 58.)

Shell small, fragile, elongate-ovate, hyaline white, shining, rimate. Whorls 4 1/2, separated by a deep suture. Protoconch (the first 2 whorls) smooth; apex somewhat obliquely flattened; the subsequent whorls convex. Spire as high as aperture, with convex outline; base slightly convex. Sculpture: very fine spiral striae at regular intervals, the two uppermost striae below the suture broader; besides fine lines of growth, a little flexuous, here and there somewhat elevated to fine longitudinal riblets causing an indistinct reticulation.

Aperture narrowly ovate, angled above, its left contour slightly concave throughout (parietal wall not convex); peristome thin, continuous; outer lip sinuous below the suture, produced below the middle, under lip somewhat retreating, and slightly bent down, forming a shallow and broad sinus. Columella oblique, slightly curved, straight in the middle, columellar lip rather broadly reflected limiting an umbilical fissure and continuous on the parietal wall in a thin but distinct callus. Dimensions: H. 2.6, br. 1.4 mm. — Locality: North Island: 16, a few dead shells.

No representative of the genus *Fossarus* was until now known in New Zealand. In this paper 5 species are recorded. The present one seems to be closely related to *F. bulimoides* Tenison-Woods figured by Tate & May (1901, pl. XXVI, fig. 66).

Fossarus conicus n. sp.
(Pl. II, fig. 59.)

Shell small, fragile, conical, opaque white, a little shining, rimate. Whorls 6, convex; suture subcanaliculate. Apex obliquely flattened; protoconch (2 whorls) smooth, of a yellowish-brown colour. Spire as high as aperture, with straight outlines; base slightly convex. Sculpture indistinct, consisting of faint distant spiral threads, visible only in places, and irregular flexuous lines of growth here and there appearing as low riblets. Aperture narrowly ovate, angled above, its left contour undulating (parietal wall convex, columella concave); peristome thin, outer lip protracted below the middle, and lower lip sinuous as in the preceding species; columellar lip narrow, reflected, bounding a very narrow umbilical fissure; parietal callus very thin. Dimensions: H. 3, br. 1.7 mm. — Locality: North Island: 16, 3 empty shells.

Fossarus productus n. sp.
(Pl. II, fig. 60.)

Shell small, fragile, turreted, dull white, opaque, rimate. Whorls 5 1/4, convex, suture deep, apex papillate; protoconch of 2 whorls, smooth; next whorl smooth, the 4th and subsequent with regular close, revolving cords and narrower sulci between them, the uppermost 4 cords stronger, with somewhat broader interspaces, the uppermost cord separated from the suture by a smooth (or faintly sulcate) zone; lines of growth rather inconspicuous. Spire about 1 1/2 times the aperture in height, with straight outlines; base slightly convex. Aperture narrowly ovate, rounded above; peristome thin, continuous; outer lip a little produced below the middle; under lip narrowly sinuous with a few oblique furrows within, corresponding to the spiral cords; columella perpendicular, slowly curved; columellar lip narrow, reflected and appressed, limiting an umbilical groove; parietal callus very thin. Dimensions: H. 2.7, br. 1 mm. — Locality: North Island; 16, 3 empty shells.

Fossarus hyalinus n. sp.

(Pl. II, figs. 61, 62.)

Shell minute, ovate-conic, fragile, hyaline white, umbilicate. Spire a little exceeding the aperture in height, with slightly convex outlines, base a little convex. Whorls 5, convex, sometimes a little flattened above the middle; suture deep, subcanaliculate. Apex blunt; protoconch of 2 smooth whorls, the following smooth or with very indistinct distant spiral striae and fine lines of growth; a more conspicuous, though yet very faint, impressed line in the middle of the last whorl. Aperture ovate, angled above and distinctly incavated by the convex parietal wall. Peristome discontinuous, thin; outer lip sometimes thickened at the inside, sinuous above, much produced below its middle, under lip much retreating to form a deep semicircular sinus, columellar lip simple below, reflected and appressed above; columella perpendicular, convex or carrying an indistinct tooth in its middle; umbilicus comparatively broad but shallow. Dimensions: H. 2, br. 1.3 mm. — Locality: North Island: 16, several empty shells.

The closest relative of this species seems to be *Fossarus minutus* Petterd, described and figured by Tate & May (1901, p. 458, pl. xxvii, fig. 85). The single difference seems to be the smaller size of the type (h. 1.1, br. 0.7 mm), which, however, has 4 whorls only, its continuous peristome and its varicose outer lip. The new species is somewhat varying as to the convexity of the whorls, the more or less pronounced protraction of the outer lip and the presence or absence of a tooth on the columella. Together with *F. minutus* the new species will certainly, as Tate & May mean, prove to merit generic distinction.

Fossarus minutus Petterd.

North Island: 16, several empty shells, max. h. 1.5, br. 1 mm; whorls 5.

To this species I refer a form which at the first glance resembles a small *Rissoa* but which appears to be akin to *F. hyalinus*, from which it differs in its smaller size, more solid shell, continuous peristome, less produced outer lip, and rather shallow sinus of lower lip. The spire varies somewhat in height, being in the largest specimens, with 5 whorls, about 1 1/2 times the aperture in height, in smaller ones the spire is proportionally shorter. There is, however, no distinct tooth on the columella in any of the specimens, though a faint convexity may be present. The outer lip may be varicose or not.

Fam. **Risellidae.**

Risellopsis varia (Hutton).

North Island: 3, many small sps. — 9, 3 small sps. — Stewart Island: 31, 2 sps., d. 4.5 (var. *carinata* Kesteven).

Fam. **Rissoidae.**

Rissoa cheilostoma Tenison-Woods.

North Island: 11b, 1 sh., h. 3.

Rissoa foveauxiana Suter.

Stewart Island: 36a, many shs., h. 2.4. — The shells are indistinctly shouldered, the uppermost 4 spiral ridges are stronger than the subsequent ones and have interspaces of the same breadth as the ridges; the remaining ones are narrower. In the penultimate whorl the upper ridges are solely present, the lower ones being extremely faint; there are about 11 spirals in all.

Rissoa roseola Iredale (=*rosea* Hutton, non Deshayes).

Auckland Island: 40, many sps., h. 1.9. — 41, Figure 8 Island, under stones at low water, 2/2 1915, many sps. — 41, Masked Island, on rocks, some sps., h. 1.9.

Rissoa subfusca Hutton.

North Island: 6, 1 small sp. — 19, 2 sps., h. 2.7. — Auckland Island: 40, many sps., h. 2.2. — 41, Figure 8 Island, under stones at low water, many sps.

Rissoa zosterophila Webster.

North Island: 6, many small sps. — 21, many small sps. — Stewart Island: 36a, many sps., h. 2.5. — Auckland Island: 40, 4 sps., h. 2.

Rissoa cylindrella n. sp.

(Pl. I, fig. 14.)

Shell ovate-cylindric, contorted, fragile, slightly shining, imperforate, white. Whorls 5, appressed in their upper half, then convex, the last whorl of half the shell height, base rounded; suture impressed, margined. Protoconch semiglobose, of 1 1/2 whorl, finely spirally striate; subsequent whorls with coarser spiral lirae, numerous (about 24) on the last whorl, broader on the base, and strong, somewhat flexuous, longitudinal costae, about 18 on the last whorl fading below the periphery as well as towards the suture. Aperture ovate, sharply angled above; peristome thin, continuous, outer lip somewhat produced below, thin, not varicose; columella oblique, sinuous; parietal wall with a distinct callus; no umbilicus. Dimensions: H. 2.5, br. 1.1 mm. — Locality: North Island: 2, 1 empty shell.

Rissoa exerta Suter seems to be the next akin species, but differs i. a. in its fewer costae. *R. maccoyi* Tenison-Woods figured by Hedley 1900 (pl. XXVI, fig. 11) is very similar but less contorted, and its costæ appear to reach the suture.

Rissoa semen n. sp.

(Pl. I, figs. 10, 11.)

Shell minute, elongate-ovate, solid, imperforate, polished. Sculpture varying from entirely smooth to showing traces of spiral striae; sometimes a pair of strong revolving keels in the periphery of the last whorl and an obscure one on the base. Colour fulvous, somewhat lighter on the aperture side; inner lip reddish orange. Protoconch finely spirally striated. Spire about 1 1/2 the height of the aperture. Suture shallow. Whorls 5, slightly convex, margined at the suture, the last one rounded in the periphery, flattened above and below. Aperture broadly ovate, fulvous within; peristome thick, continuous, double on account of a small swelling of the lip inside its edge, its colour white, except the reddish-orange columellar lip, which is sunk and sharply set off from the body whorl. Columella short, sinuous. Operculum ovate with a thicker disc on the inside, the margin of which forms a crest along the columellar edge of the operculum. Dimensions: H. 1.5, br. 0.7 mm. — Locality: North Island: 3, a few specimens.

This species belongs to the same group as *R. incidata* and *R. lampra* as well as the new *R. erosa*, but it is more slender; it recalls the first-named in the occasional appearance of a pair of spiral keels.

Rissoa erosa n. sp.

(Pl. I, figs. 12, 13.)

Shell minute, conical, solid, imperforate. Whorls 5, flattened, suture canaliculate. Spire about 1 1/2 times the aperture in height. Protoconch of 1 1/2 whorls, reddish-brown and sculptured with minute grains in many very close spiral lines; subsequent whorls light yellowish-brown with longitudinal costae separated by narrower furrows; above the suture a strong revolving thread; on the last whorl the upper half carrying about 22 longitudinal costæ; the periphery encircled by a pair of strong spiral cords; base flattened and bearing an additional cord. Except for the strong costae and ribs only fine lines of growth. Aperture oblique, rounded-ovate; peristome thick, continuous, and double, with an interior swelling rising from above and below and extending beyond the primary lip externally. Columella oblique, sinuous; columellar lip sunk, brownish. Dimensions: H. 1.5, br. 0.8 mm. — Locality: North Island: 1, some few specimens.

Operculum (fig. 13) ovate, with a thin outer layer and a thick inner one forming a crest-like edge on the columellar side.

Rissoina achatina n. sp.

(Pl. I, figs. 5—9; text-fig. 3.)

Shell elongate conic, imperforate, solid, shining, with faint and obsolete axial sculpture, and fine, sharp, undulating spiral striae indistinct on the base. Colour pure white or white with a brown design in shape of a row of stripes on a white band below the suture, often combined with fulgurating longitudinal lines, which may predominate; often the brown colour markings may be confluent into 1—3 brown bands leaving a white subsutural line or zone; apex and base white. Spire about twice the aperture in height. Whorls 7, slightly convex, the last somewhat more than half the shell height; suture slightly impressed. Protoconch papillate, of 1 1/2 smooth whorls. Aperture oblique, semiovate, subcanaliculate below, angled above; external lip somewhat expanded at the middle. Columella excavated, obliquely truncate at the channel. Operculum (pl. 1, fig. 9) elongate ovate, horny, its inner margin with a small projecting angle near the base below the claviform process, which is situated at the third of the operculum height.

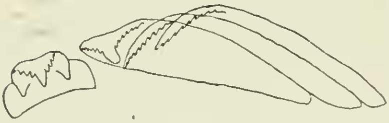

Fig. 3. Radula of *Rissoina achatina* n. sp., half a row. × 440.

Locality: North Island, 11a, 1 sh., h. 4.2. — 11b, many sps., max. h. 6.2, br. 2.2.

In shape and colour this species is very similar to *R. zonata* Suter and above all to *R. variegata* Angas, but it differs in its almost completely failing axial sculpture. The whole shell is peculiarly pierced by fine fissures, here and there widened to short lacunae appearing as opaque white maculations. This may be due to occasional circumstances, e. g. boring organisms.

This species may perhaps be included in *R. hanleyi* of Suter. Having no access to authentic specimens of Suter's species, I prefer to describe and illustrate the species at hand which differs from *R. hanleyi* Schwartz in its faint sculpture. Compared with *R. rugulosa* Hutton the present species is more slender with less convex whorls and less impressed suture, its aperture is less oblique.

Some of the specimens bore egg-capsules deposited on their shells (one is figured).

The radula (text-fig. 3) has the general shape of the teeth; the median tooth has 3—4 denticles on each side of the cusp, the lateral tooth 6 and the 2 marginal teeth many.

Rissoina hanleyi Schwartz.

North Island: 5, 1 sp., h. 5.3. — 7, 1 shell, h. 6.5.

Rissoina emarginata Hutton.

North Island: 16, 1 sh., h. 2.5.

Rissoina chathamensis Hutton (=*rugulosa* Hutton).

North Island: 11d, many sps., h. 6.2. — 19, many sps., h. 7.

Eatoniella (*Rissoina*) *cuvieriana* (Suter).

North Island: 3, some very small sps., whorls convex, very indistinct spiral sculpture, shell rimate, colour ashy as in *R. fuscozona*.

Eatoniella (*Rissoina*) *fuscozona* (Suter).

North Island: 3, many small sps.

Eatoniella (*Rissoina*) *limbata* (Hutton).

North Island: 6, many sps , h. 2.4.

Eatoniella (*Rissoina*) *olivacea* (Hutton).

North Island: 3, (var. *lutea* Suter), numerous small sps. — 9, (var. *annulata* Hutton), many small sps. — Auckland Island: 37, many sps., h. 3. — 40, many sps., h. 3.

Fam. **Hydrobiidae**.

Potamopyrgus badia (Gould).

North Island: Lake Takapuna, Auckland, 23/12 1914, many sps., h. 6.

Potamopyrgus corolla (Gould).

North Island: Lake Takapuna, Auckland, 23/12 1914, many sps., h. 4.

Potamopyrgus spelaeus (Frauenfeld).

North Island: Moko Hinau Isl., Hauraki Gulf, brack water pool, 30/12 1914, many sps., h. 2.3 mm (var. *pupoides* Hutton).

Fam. **Cerithiidae.**

Cerithidea bicarinata (Gray).

North Island: 8, many sps., h. 25.

Cerithidea subcarinata Sowerby.

North Island: 7, some sps., h. 11.5. — 19, on Corallinae, numerous small sps., h. 13.

Cerithidea tricarinata Hutton.

North Island: 11d, 1 sp., h. 12. — 12, numerous sps., h. 14. — 15, 1 sp., h. 12.

Cerithium invaricosum n. sp.

(Pl. 1, fig. 15.)

Shell turreted-conic, light fawn-coloured with a violet band below the suture. Whorls 9, slightly convex; suture deep, broadly canaliculate. Protoconch of 2 1/2 whorls, smooth, brown, the next whorls reticulate, with three spiral cords and radial ribs of the same breadth; on the penultimate and last whorl 22 longitudinal ribs and 5 flattened spiral cords appearing only in the interstices between the ribs; base with 8 spiral cords (and neck with 2 additional ones) the uppermost (peripherial) one strongest and limiting the ends of the ribs which are not continuous on the base. Aperture rounded square with a very short oblique canal notched in the end. Columella perpendicular. Outer lip simple, inner lip reflected; a very narrow umbilical fissure at the columella. Dimensions: H. 9, br. 4, h. of aperture 2.8, h. of last whorl 4.7 mm. — Locality: North Island: 11b, 1 empty shell. — The total absence of varices and the reticulate sculpture give this species an appearance like a *Cerithidea*.

Fam. **Cerithiopsidae.**

Cerithiopsis canaliculata Suter.

North Island: 16, 1, h. 4.

Cerithiopsis dirempta n. sp.

(Pl. I, fig. 16.)

Shell small, biconical, with convex outlines. Whorls 8 (except the broken protoconch), flat; suture indistinct, impressed and margined. Sculpture: upper whorls with 2 revolving bands with series of uniformly strong subquadrate gemmulae leaving a median zone of the same width showing only axial riblets (low and narrow) combining the gemmulae; their number in the last whorl 17. On the antepenultimate whorl an intermediate riblet appears forming tubercles on the axial costae and increasing in size distally, gemmulae thus getting larger, but still remaining smaller than those of the bands, the upper of which becomes, finally, the broadest. Base with 2 thick entire revolving ridges, the upper one thinner proximally (on the parietal wall above the mouth). Colour reddish-brown, lighter towards apex and base; revolving bands (especially upper one) purplish-brown, gemmulae dirty white. Aperture subquadrate, narrowly canaliculate above, outer lip somewhat produced below, inner lip forming a small tooth when reflected on the upper basal ridge. Columella regularly sinuous, with a thick reflected lip, truncated below; canal very short, curved, with a notched end. Dimensions: H. 3, br. 1.2 mm. — Locality, North Island, 2, 2 empty shells.

From the known New Zealand species of the genus this form is well distinguished in shape and sculpture: on the upper part of the spire there are 2 distant gemmuliferous cinguli, further below there are 3. It seems to be most nearly related to Queensland species such as *C. pinea* Hedley 1909, p. 440, pl. XL., fig. 55).

Cerithiopsis sarissa Murdoch.

North Island: 11a, 1 sp., h. 6. — Auckland Island: 43, 1 sp., h. 7.

Cerithiopsis trizonalis n. sp.

(Pl. I, fig. 17.)

Shell small, turreted, whith straight outlines; whorls 11, plane, suture impressed, not deep. Sculpture: apical 1 1/2 whorls smooth, the subsequent whorl with dense somewhat flexuous axial costae; third whorl with 2 revolving ridges, the under one stronger; in the subsequent whorls coarser axial costae (their number 20—21 on the last whorl), knob-bearing in the crossing points and ending above, below the sutures, with a series of tubercules non combined spirally; below, close above the suture, a fine simple thread, getting coarser on the last whorl and accompanied on the base by a further spiral ridge. Colour grayish-white. Aperture square, with a short canal, notched in the end. Dimensions: H. 3.9, br. 1.1 mm. — Locality: North Island, 16, 1 empty shell.

This species recalls in its sculpture (especially in the existence of a basal riblet) *C. marginata* Suter, which differs, however, in being larger and having only 8 whorls with 2 series of gemmulae, as well as *C. styliformis* Suter, which has only 15 axial costae on the last whorl.

Seila dissimilis Suter.

(Pl. I, fig. 18).

Campbell Island: 45, 10 empty shells, h. 3.8, br. 1.1, whorls 8. — Suter has described and figured (1908) the species from a not full-grown specimen. I give a figure from an adult one. The colour is pale-brown (apex lighter), costae and canal whitish. To Suter's description of the sculpture may be added that the basal spiral ridge appears on the 3—4 lower whorls as a weak thread immediately above the suture.

Seila terebelloides (Hutton).

North Island: 11a, 3 sps., h. 9.5.

Fam. **Triphoridae.**

Triphora infelix Webster.

North Island: 10, 1 sp., h. 8.4.

Triphora lutea Suter.

North Island: 16, 2 sps., h. 3.

Triphora tribulationis Hedley.

To this species I refer a specimen from St. 2 (10 miles off Cape Maria v. Diemen, 50 fms, hard bottom). Its colour is yellowish with rusty bands. The only difference from the type, as it is described and figured by Hedley (1909, p. 440, pl. XL, figs. 53, 54), seems to be its nearly perpendicular canal and the almost simple (not beaded) upper basal riblet. The apex was broken, the remaining whorls were 9. Dimensions: H. 4, br. 1.2 mm. — The type comes from Hope Island, North Queensland.

Fam. **Vermetidae.**

Serpulorbis sipho (Lamarck).

North Island: 17, 3 sps., l. 33.

Serpulorbis zelandicus (Quoy & Gaimard).

North Island: 1, 1 sp., l. 20.

Fam. **Caecidae.**

Caecum suteri n. sp.

(Pl. I, fig. 19.)

Shell tubular, slightly curved, smooth, shining, calcareous white, its length about 5 times the breadth, aperture only little wider than apex, and circular. Apical septum with a small broad mamillate projection above on the right side. Nepionic shell spiral, discoidal, more excavated on the left side, consisting of 2 1/4 whorls, with no other sculpture than the growth lines. Maximum length 1.2, breadth 0.25 mm.

Locality: North Island, 16, some empty shells.

This may be the same species as Suter (1913) mentions and (1915) figures under the name of *Cæcum digitulum* Hedley, and which differs from Hedley's type in its less rapid tapering, according to a remark made by Iredale and quoted by Suter (l. c. p. 265).

Fam. **Turritellidae.**

Turritella fulminata Hutton.

North Island: 10, 9 sps., h. 25. — 16, 2 sps., h. 20. — 13, 2 sps., h. 22.

Turritella pagoda Reeve.

North Island: 25, 6 sps., h. 27.5.

Turritella rosea Quoy & Gaimard.

South Island: many sps., h. 69. — Stewart Island: 31, 2 shells, h. 35. — 32, 4 sps., h. 41. — 35, 1 sp., h. 37. — 36a, 2 small shells. — Stewart Isl., without definite locality, 20 fms, hard bottom 16/11 1914, 1 sp., h. 41 and 35 fms, sand, 20/11 1914, 1 sp., h. 39.

Turritella symmetrica Hutton.

Stewart Island: 35, 1 sp., h. 37. — 36a, many sps., h. 16.

Turritella vittata Hutton (=*T. carlottae* Watson).

North Island: 2, 3 sps., h. 69. — 10, many sps., h. 52. — 13, 3 sps., h. 44. — 16, 5 sps., h. 42. — E. A. Smith has reintroduced Hutton's name which was rejected by Murdoch & Suter (1906) on the inadequate presumption that it had been preoccupied by Lamarck.

Fam. **Struthiolariidae.**

Struthiolaria papulosa (Martyn).

North Island: 13, 1 sp., h. 54. — 16, 2 fragments and many small shells. — Stewart Island: 36a, 4 sps., h. 85.

Struthiolaria vermis (Martyn).

North Island: 10, 1 sp., h. 42. — 16, 1 sp., h. 52.5. — South Island: 29, 2 sps., h. 37. — Stewart Island: 36a, 1 sp., h. 21.

Fam. **Xenophoridae.**

Xenophora corrugata (Reeve).

North Island: 16, many sps., h. 70.

Fam. **Calyptraeidae.**

Calyptraea tenuis (Gray) (=*scutum* Lesson).

North Island: 10, 6 sps., d. 15.5. — 16, many sps., d. 17.5. — 22, 2 sps., d. 12. — 25, many sps., d. 13. — Stewart Island: 32, 1 sp., d. 18. — South Island: 29, 1 sp., d. 13.

Calyptraea alta (Hutton).

North Island: 1, 3 sps., d. 17. — 2, 1 sp., d. 22. — 11a, 3 sps., d. 28. — 14, 1 small sp. — 16, 6 sps., d. 16.5. — 17, 1 sp., d. 19. — 19, 1 sp., d. 24. — 24, 1 sp., d. 18. — 25, many sps., d. 17. — South Island: 29, 5 sps., d. 26. — Stewart Island:

32, 1 sp., d. 24. — Auckland Island: 37a, 4 sps., d. 19. — Campbell Island: 45, many sps., d. 24.

Crepidula costata Sowerby.

North Island: 7, 3 sps., l. 25. — 17, many sps., l. 39.

Crepidula monoxyla Lesson.

(=*C. crepidula* Hutton).

North Island: 10, 1 sp., l. 9.5. — 16, 2 sps., l. 30. — 25, 1 sp., l. 21.5. — South Island: 29, 2 sps., l. 22.5. — E. A. Smith (1915) has identified the species and drawn attention to the difference between it and *C. crepidula* Linné.

Fam. **Lamellariidae.**

Lamellaria verrucosa n. sp.

(Pl. I, figs. 20—22; text-fig. 4.)

Body depressed, semiglobose; mantle rugose, sparsely and irregularly verrucose with small tubercles simple or composed by smaller pustules. Underside of mantle margin smooth, with radiating muscle fibres. A distinct inspiratory canal in the front margin produced into a short siphon. No exspiratory canal. Head large, conical; tentacles digitiform, with flattened bases, carrying the sessile eyes in about one third of their length. Foot large, broadly rounded behind, widest in front, and with shortly projecting anterior corners. Its frontal margin fissured transversally, in all its breath forming a rudimentary propodium. Osphradium ovate, bipectinate, about 2/3 of the gill length and like

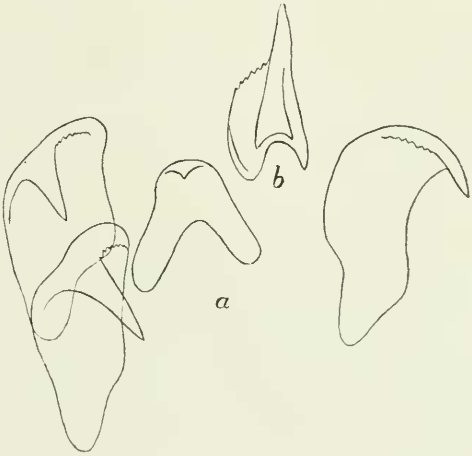

Fig. 4. Teeth from the radula of *Lamellaria verrucosa* n. sp. *a* median tooth and 2 lateral teeth, *b* a lateral tooth from below. × 40.

this pale-brownish in colour. Colour of the body pale rosy (in alcohol). — Dimensions: L. 37, br. 29 mm.

Shell (Pl. I, fig. 22) a thin hyaline membrane, without trace of calcareous substance; whorls 3 1/2, convex, apex mamillar, protoconch membraneous, of a grainy consistency.

Radula (text-fig. 4) broad, of the formula 1. 1.1 (breadth 1.4 mm); median tooth with divergent basal legs and a short and broad cusp; its height considerably smaller than that of the laterals (length about 0.22 and breadth 0.25 mm); laterals broad, curved, inner edge thin and with about 6 small denticles, the cusp strong and pointed with its outer edge finely serrated; length of the laterals about 0.45 mm.

Locality: Auckland Island: 41, 1 sp.

This new and large species of the genus *Lamellaria* resembles *L. mollis* Smith in its membraneous shell, but externally it differs in its verrucose notum.

Fam. **Naticidae**.

Natica zelandica Quoy & Gaimard.

North Island: 10, 1 sp., h. 10.5. — 13, 1 sp., h. 12. — 16, 1 small sp. — 22, 1 sp., h. 23. — 25, 2 sps., h. 19. — Stewart Island: 36a, 3 sps., h. 17.

Fam. **Trichotropidae**.

Trichotropis inornata Hutton (=*clathrata* Sowerby).

South Island: 29, 6 sps., h. 17. — Stewart Island: 32, 1 sp., h. 22.

Fam. **Cymatiidae**.

Argobuccinum tumidum (Dunker) (=*argus* Gmelin, by Suter).

Stewart Island, without definite locality, 1 empty shell, h. 108 mm. Iredale and Hedley consider the Australian-Neozelanic form as a distinct species not identical with *A. argus* from the Cape Colony.

Argobuccinum australasia (Perry).

North Island: 1, 1 small sp.

Fam. **Cassididae.**

Cassidea labiata pyrum Lamarck.

North Island: 25, 1 shell, h. 55 mm.

Fam. **Epitoniidae.**

Epitonium philippinarum (Sowerby).

North Island: 10, 1 shell, h. 10. — 16, several small shells.

Epitonium zelebori (Dunker).

Auckland Island: 43, 1 sp., h. 7.

Aclis semireticulata Murdoch & Suter.

North Island: 18, 1 sp., h. 3. — 16, many sps., h. 3.5.

Aclis succincta Suter.

North Island: 16, many shells, h. 3.

Fam. **Pyramidellidae.**

Syrnola (Pyramidella) pulchra Brazier.

North Island: 16, 3 sps., h. 4.5.

Turbonilla zealandica (Hutton).

North Island: 16, 1 sp., h. 3. — Auckland Island: 40, 1 sp., h. 5. — 43, 3 sps., h. 3.

Turbonilla campbellica n. sp.

(Pl. I, fig. 23.)

Shell slender, small, with 10 convex whorls separated by a deep suture; protoconch of 1 whorl, smooth and heterostroph; subsequent whorls with strong longitudinal costae (18—20 on the last whorl), confluent on the base, so that the furrows between the costae finish abruptly below the periphery; thus there is no distinct basal keel. Colour brownish or light yellowish-gray without bands. Aperture ovate. No umbilicus. Dimensions: H. 7, br. 2 mm. — Locality: Campbell Island, 44, 2 shells.

The large size of this shell approaches it to the Australian

Turbonillas such as *T. fusca* Adams, from which it differs in lacking spiral bands. Whether it is identical with any of them is not to be established without a good material for comparison; in lack of this I prefer to describe and figure the form as a new species.

Odostomia inornata Suter.

North Island: 16, many sps., h. 4.

Odostomia dolichostoma Suter.

North Island: 11a, 1 sp. h. 3.7.

Odostomia stygia Suter.

North Island: 16, 1 shell, about 4 mm (apex broken).

Evalea (Odostomia) liricincta (Suter).

Auckland Island: 41 (Figure 8 Island, low water under stones), 1 sp., h. 3.3.

Fam. **Eulimidae.**

Eulima aucklandica Suter.

Auckland Island: 40, 1 sp., h. 6: spire bent to the right. — 41, (Masked Island), many sps., h. 5; spire in some specimens straight.

Fam. **Fasciolariidae.**

Fusinus spiralis (A. Adams).

North Island: 16, 1 canal.

Latirus (Taron) huttoni Suter.

North Island: 7, 1 sp., h. 8.7.

Fam. **Mitridae.**

Mitra albopicta Smith.

North Island: 11b, 1 sp., h. 5.3.

Mitra mortenseni n. sp.

(Pl. I, fig. 24.)

Shell small, shortly fusiform, solid, a little shining; spire much shorter than (about 2/3 of) aperture; suture deep. Whorls 6 1/2, convex, the apical 1 1/2 smooth, the remaining ones sculptured with strong longitudinal costae (about 14 on the last whorl) disappearing on the base, and spiral lirae separated by impressed lines, most distinct between the costae and on the shoulder; on the base the spiral lirae become much coarser and are here separated by interstices of the same breadth. Colour grayish with 3 fulvous bands on the last whorl (the upper one below the shoulder, the lower on the base, and a faint median one); a light zone beneath the suture; shell everywhere reticulated with very fine brown meshes; aperture with the brown bands shining through. Last whorl somewhat ascending in front; aperture narrow, slightly widened in the middle, with a small sinus above, contracted below to a short canal; outer lip simple, somewhat flexuous, inner lip very fine, ill-defined; columella straight, equidistantly 4 plaited, the upper plait horizontal, the others gradually more oblique. Dimensions: H. 14.4, br. 7.3 mm. — Locality: North Island: 5, 1 shell.

The shape and sculpture of this shell are very characteristic and separate it distinctly from the previously known N. Zealand species of the genus *Mitra*.

Vexillum marginatum (Hutton).

North Island: 16, 6 sps., h. 6.5. — 18, 1 sp., h. 4.

Vexillum pseudomarginatum (Suter).

North Island: 16, 1 empty shell, h. 3.8.

Vexillum rubiginosum (Hutton).

North Island: 17, 1 sp., h. 9.5. — 19, 1 sp., h. 5.5.

Fam. **Chrysodomidae**.

Verconella maxima (Tryon).
(=*Megalatractus maximus* Suter).

North Island: 10, 1 sp., h. 80. — The genus *Verconella* was constituted by Iredale (1914) for the N. Zealand shells referred to *Siphonalia*, a Japanese group with no close relationship to the former, and to *Megalatractus*.

Verconella (Siphonalia) nodosa (Martyn).

North Island: 10, 5 sps., h. 44. — 13, 1 sp., h. 39. — 16, 5 sps., h. 51. — 22, 1 sp., h. 46. — 24, 2 sps., h. 37. — 25, numerous sps., h. 45.

Verconella (Siphonalia) caudata (Quoy & Gaimard).

North Island: 7, 1 sp., h. 18.2. — 11a, 1 sp., h. 15. — South Island: 29, 1 sp., h. 35.

Verconella (Siphonalia) mandarina (Duclos).

North Island: 22, 1 sp., h. 110.

Euthria flavescens (Hutton).

South Island: 29, 1 sp., h. 31. — Stewart Island: 31, 6 sps., h. 27. — 36, 3 sps., h. 26.5; 2 of these specimens are cream-coloured, the third violet brown with two ligth bands.

Euthria linea (Martyn).

North Island: 17, 1 sp., h. 34. — South Island: 29, many sps., h. 38. — Stewart Island: 30, 6 sps., h. 27. — 31, numerous sps., h. 31.5. — Auckland Island: 37, many sps., h. 47. — 37a, 4 sps., h. 28. — 40, many sps., h. 30. — 41 (Masked Island), many sps., h. 30. — Campbell Island: 44, 5 sps., h. 24.

Euthria littorinoides (Reeve).

North Island: 7, 1 sp., h. 15.5. — 11d, 1 sp., h. 14.2. — 28, 1 sp., h. 18.5. — Auckland Island: 37, numerous sps., h. 27.

Euthria strebeli Suter.

North Island: 17, many sps., h. 25. -— Stewart Island: 36, 3 sps., h. 26.

Euthria striata (Hutton).

South Island: 30, 1 sp., h. 10.

Fam. **Buccinidae.**

Cominella campbelli (Filhol).

Campbell Island: 44, many sps., h. 30.

Cominella eburnea (Reeve) (=*costata* Quoy & Gaimard).

North Island: 19, some sps., h. 13. — 28, 1 sp., h. 15.

Cominella quoyana (A. Adams) (=*huttoni* Kobelt).

North Island: 5, 1 sh., h. 16.5 (with 10 costae). — 10, 2 sps., h. 20. — 11b, many sps., h. 20.5 (with 10—11 axial costae).

Cominella lurida (Philippi).

North Island: 7, 1 sp., h. 22. — 8, 1 sp., h. 26.

Cominella adspersa (Bruguière) (=*maculata* Martyn).

North Island: 7, 2 sps., h. 30. — 11a, 1 sp., h. 40. — 11b, 4 sps., h. 40. — 28, 1 sp., h. 47. — South Island: 29, 2 sps., h. 55. — 30, 1 sp., h. 20.

Cominella maculosa (Martyn).

North Island: 15, 5 sps., h. 35. — 19, 7 sps., h. 29. — 28, 2 sps., h. 29.

Cominella nassoides (Reeve).

South Island: 29, 1 sp., h. 22 (variety with turreted spire about 1 1/2 times the aperture in height). — Stewart Island: 31, 7 sps., h. 49.5.

Cominella virgata H. & A. Adams.

North Island: 15, 1 sp., h. 23.5. — 19, 1 sp., h. 31. — Stewart Island: 31, 3 sps., h. 25. — Stewart Island, without definite locality, 20 fms, hard bottom, 16/11 1914, 1 sp., h. 35.

Cantharus fuscozonatus Suter.

North Island: 17, 2 sps., h. 16.

Prosipho chariessa (Suter) (=*Daphnella chariessa* Suter).
(Pl. I, fig. 25.)

North Island: 16, 1 shell, h. 4.7. — I include the present species in the genus *Prosipho* Thiele 1912, on account of its fusiform shape and lack of a distinct sinus of the aperture, its strong spiral cords and the smooth protoconch which is limited in front by a straight line, in the present specimen further a little thickened to recall an indistinct varix; in front of that edge the permanent sculpture immediately appears. The protoconch has its second whorl remarkably high, as Suter states. A similar shape and smoothness of the protoconch are characteristic of the genus *Prosipho*. Congeneric with the present species are probably also *Daphnella conquisita* and *crassilirata*, possibly further *D. acicula*, *amphipsila* and *psila*.

The genus *Prosipho* has nearly all its known representatives in the Antarctic and Subantarctic Regions. Smith (1915) records *P. cancellatus* from off Rio de Janeiro but thinks this locality to be due to some mistake.

Prosipho chariessa has a general appearance most similar to *Daphnella totolirata* Suter, which is, however, referred by Hedley (1922) to his genus *Nepotilla* belonging to the group *Daphnellinae* of Fam. *Turridae*, on account of the spirally sculptured apex It is possible that also some of the spirally lirate species of *Alcira* from New Zealand belong to *Prosipho*. According to Hedley (1922, p. 259) some representatives of the genus are also present in Australia, formerly included in *Mitromorpha*.

Fam. **Muricidae**.

Murex (*Pteronotus*) *angasi* Crosse.

North Island: 4, 1 sp., h. 15.

Murex (*Hexaplex*) *octogonus* Quoy & Gaimard.

North Island: 10, 8 sps., h. 50. — 11a, 1 sp., h. 26. — 16, 2 sps., h. 52. — Stewart Island: 35, 1 sp., h. 26.

Murex zelandicus Quoy & Gaimard.

North Island: 10, 8 sps., h. 45. — 11c, 2 sps., h. 42. — 13, 1 sp., h. 31. — 16, 7 sps., h. 50, + 1 small sp. with 8 varices. — 18, 4 small sps. + 1 sp., h. 32 (with 5 varices).

Trophon ambiguus (Philippi).

North Island: 22, 1 sp., h. 10. — South Island: 29, 1 sp., h. 30. — 30, many sps., h. 14.

Trophon aucklandicus (Smith).

Stewart Island: 33, 2 sps., h. 8.5. — Auckland Island: 37a, 8 sps., h. 12.5.

Trophon corticatus (Hutton).

South Island: 29, 2 sps., h. 14.

Trophon curtus Murdoch.

North Island: 11a, 1 sp., h. 8.

Trophon plebeius (Hutton).

South Island: 30, 1 sp., h. 10.

Trophon pusillus Suter.

North Island: 10, 1 sp., h. 6. — 22, 1 sp., h. 6.5. — 24, 1 sp., h. 7.2. — Auckland Island: 43, 4 sps., h. 10.

Trophon mortenseni n. sp.

(Pl. I, figs. 26, 27; text-fig. 5.)

Shell turreted, spire equalling aperture with canal in height. Whorls 7, convex, distinctly shouldered, suture deep. Sculpture: the 2 apical whorls entirely smooth, subsequent whorls with strong longitudinal costae, 12—13 on the two last whorls, evanescent on the canal, separated by as broad interstices and crossed by strong revolving cords, 2—3 in the 3rd and the next whorls, 13 on the last, of which 1 small on the shoulder and 5—6 on the canal; angular keel strongest, grooved all along (or both parts wholly separated); grooves between the spiral cords narrower than these latter; irregular elevated lines of growth besides giving the surface a crispulate appearance. Colour faintly cream-white, sometimes with a light brownish hue translucent into the interior of aperture. Aperture ovate, its outer lip thin; columella with an indistinct fold below limiting the narrow, slightly bent canal, the length of which somewhat exceeds the height of aperture. Dimensions: H. 12.6, br. 5.8 mm. Operculum (Pl. I, fig. 27) lanceolate ovate with subapical apex.

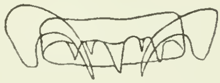

Fig. 5. A row of teeth (one median and each one lateral) from the radula of *Trophon mortenseni* n. sp. × 440.

Localities: Auckland Island: 41 (Masked Island), 1 shell, h. 8. — 42, 1 living and 3 dead sps. (h. 13.5, dead, 12.4 living). — 43, 2 living and 3 dead sps.

In general appearance this species comes nearest to *T. pusillus* Suter, which is, however, much smaller and has fewer costae and cords. Compared with *T. aucklandicus*, with which it shares the smooth protoconch (consisting, however, of 1 whorl in *T. aucklandicus*) the new species has a more distinct and elaborate sculpture, a longer canal, more convex whorls and a whitish (not dark-brown) colour.

The radula (text-fig. 5) has a similar shape as in *T. aucklandicus* figured by Suter (1915, pl. 19, fig. 4); its breadth is 0.06 mm.

Fam. **Thaisidae**.

Haustrum (*Thais*) *haustrum* (Martyn).

North Island: 15, 1 sp., h. 38. — 19, 10 sps., h. 50.

Neothais succincta (Martyn).

North Island: 17, 6 sps., h. 45. — 19, 1 sp., h. 41. — 28, 3 sps., h. 33.

Neothais lacunosa Bruguière (=*striata* Martyn).

North Island: 14, 1 sp., h. 21. — Auckland Island: 37, 3 sps., h. 38. — 41, (Masked Island), 10 sps., h. 28. — South Island: 30, 1 sp., h. 24. — Stewart Island: 31, many sps., h. 35. — Campbell Island: 44, 1 sp., h. 35.

Lepsiella (*Thais*) *scobina* (Quoy & Gaimard).

North Island: 12, 4 sps., h. 20. — 14, 4 sps., h. 15 (var. *albomarginata* Deshayes). — 15, 1 sp., h. 23.5. — 17, 1 sp., h. 15. — 19, 3 sps., h. 22. — South Island: 30, 12 sps., h. 17. — Stewart Island: 36, 1 sp., h. 16. — Auckland Island: 40, 1 sp., h. 15.

Fam. **Pyrenidae.**

Mitrella choava (Reeve).

North Island: 10, 1 sp., h. 7.5. — 11b, 3 sps, h. 4.3. — 11d, 1 sp., h. 5.6. — 16, 3 shells, h. 4. — Stewart Island: 36a, 1 sp., h. 8 (entirely brown).

Mitrella pseudomarginata Suter.

Auckland Island: 37a, 1 shell, h. 8. — Campbell Island: 44, 1 sp., h. 6.

Mitrella websteri Suter.

North Island: 11a, 1 shell, h. 3, br. 1 mm; whorls 5.

Alcira sanguinea Suter.

Campbell Island, west coast, on the shore, 10/12 1914, many shells, h. 6.5.

Alcira sulcata Hutton.

Stewart Island: 36a, 1 sp., h. 9.

Alcira transitans (Murdoch).

Auckland Island: 40, many sps., h. 7.7. — Campbell Island: 44, 3 sps., l. 7 mm. — The species varies much in sculpture, from smooth to engraved with shallow distant spiral furrows.

Fam. **Volutidae.**

Fulguraria gracilis (Swainson).

Stewart Island: 31, 1 sp., h. 77. — 36a, 1 sp., h. 91.

Fam. **Olividae.**

Ancilla australis (Sowerby).

North Island: 11b, 5 sps., h. 23.5.

Ancilla novaezelandiae (Sowerby)
(=*bicolor* Gray, by Suter).

North Island: 11b, 4 sps., h. 12.5. — 13, 4 sps., h. 7.5.

Ancilla mucronata (Sowerby).

North Island: 4, 1 sp., h. 30.5. — 10, 2 sps., h. 15. — 13, 2 sps., h. 30. — 16, 9 sps., h. 23. — 18, 1 small sp. — 19, 1 sp., h. 35. — 25, many sps., h. 25. — South Island: 29, 2 sps., h. 15.

Fam. **Marginellidae.**

Marginella albescens Hutton.

North Island: 11b, 6 sps., h 4.4.

Marginella mustelina (Angas).

North Island: 19, 4 sps., h. 8.

Marginella coma n. sp.

(Pl. I, fig. 28.)

Shell small, solid, oval, white; spire about one third of the aperture. Sculpture: very fine and close longitudinal threads, lower half of the shell besides with fine and close revolving striae. Whorls 5, the 2 uppermost papilliform, smooth. Aperture narrow, channelled above, not widened below; columella with 4 plaits at equal distance from each other, the uppermost strongest; a slight callus above and below them on the columella. Outer lip thick, simple, without varix, appressed on the last whorl and not ascending the spire. Dimensions: H. 5.4, br. 3.4 mm. — Locality: North Island, 2, 1 shell.

This species is intermediate between *M. parvistriata* and *plicatula*; its shape is like that of *M. pygmaea*, which is however, entirely smooth.

Cryptospira ficula Murdoch & Suter.

North Island: 18, 1 sp., h. 4.

Fam. **Turridae.**

Bathytoma nodilirata (Murdoch & Suter).

North Island: 10, 2 shells, h. 17.5. — 16, 4 shells, h. 13.3, br. 4.6.

Austrodrillia rawitensis Hedley (=*Drillia angasi* Suter).

North Island: 16, 1 shell, h. 12. Hedley states (1922) that Hutton's and Suter's *Drillia angasi* is different from the type by Crosse and proposes the name used here.

Melatoma (*Splendrillia*) *laevis* Hutton.

North Island: 4, 1 shell, h. 12. — 10, 1 shell, h. 17. — 16, 1 shell, h. 6.5. Hedley (1922) proposes the subgenus *Splendrillia* for comprising this and some related species.

Sçrinium (*Bela*) *neozelanicum* Suter.

North Island: 11b, 1 shell, h. 9.5. This species has been referred by Hedley (1922) to the genus *Scrinium* Hedley.

Heterocithara mediocris n. sp.

(Pl. 1, fig. 29.)

Shell small, turreted, apex pointed, spira exceeding the aperture a little in height. Sculpture: apical whorl first smooth, then spirally punctured; two next whorls with fine spiral striae and numerous thin equidistant, somewhat flexuous, longitudinal costae; fourth and subsequent whorls with coarser, more distant axial ribs and 4—5 spiral threads, the second one strongest, forming nodules when crossing the axial ribs; axial costae continuous over all the spire, their number in the penultimate whorl 11; spiral lines on the body whorl 10 (besides one or two intermediate ones) as well as 6—7 on the canal. Interstices everywhere with fine spirals of microscopic grains. Suture rather deep. Colour white. Aperture narrow, vertical, with a deep sinus in the broad varix limited at each side by a short tooth; on the inside of the lip one further tooth (or indistinct). Edge of outer lip with some short furrows corresponding to the spiral ribs, sinuous below. Canal short. Dimensions: H. 5.5, br. 2.3 mm. — Locality: North Island: 16, 4 dead shells.

This species comes near in sculpture and shape to *H. seriliola* and *concinna* of Hedley (from Queensland) described in his splendid and useful revision on the Australian *Turridae* (1922).

Guraleus (Mangilia) sinclairi (Smith).

North Island: 7, 1 small shell. — South Island: 29, 1 sp., h. 11. — Stewart Island: 36a, 1 sp., h. 10. — Hedley (1922) refers the present species to his genus *Guraleus*.

Veprecula cooperi Mestayer.

North Island: 16, 1 shell, h. 5. The type was recorded by Mestayer (1919) from Hen & Chickens Isl., 25 — 30 fms, and from North Cape.

Asperdaphne (Mangilia) dictyota (Hutton).

North Island: 16, 1 shell, h. 5.5. According to Hedley (1922) the present species forms the New Zealand representative of the genus *Asperdaphne*.

Eucyclotoma (Mangilia) quadricincta (Suter).

North Island: 16, some shells, h. 4. -- 18, 1 shell, h. 6, whorls 6. This species has a spirally striated nucleus and prominent keels on the whorls, characters which indicate its position to be in Boettger's genus *Eucyclotoma*. The number of costae in the present specimens vary from 18 to 22 on the earlier whorls to about 32 on the penultimate, where the costae grow much more irregular. The specimens are typical in the feature of the canal which does not bear any sculpture on its back side. The axial costae are more or less lamelliform and produce vaulted scales or knobs where they cross the cinguli, according to their sharpness; hence the sculpture recalls vividly that of a small *Trophon*, above all *T. crispulatus* Suter, which differs only in having 5, instead of 4, revolving lines.

Liracraea epentroma (Murdoch) n. gen.
(=*Clathurella epentroma* Murdoch 1904).

Auckland Island: 43, 3 shells, h. 5.5 (var. *whangaroaensis* Murdoch). — Auckland Island: 43, 2 shells, h. 5.5. Murdoch (1904) described this species as a *Clathurella*, and Suter (1913) included it in *Mangilia* together with a lot of species having smooth or microscopically sculptured protoconch. Suter himself has drawn attention to the very characteristic apex in which the present species differs from all other *Mangiliinae* so essentially in its coarse revolving ribs, that the creation of a new genus for its reception seems well founded. This peculiar protoconch places this genus in a section of its own, differing as well from the smooth-tipped *Mangiliinae* as from the *Daphnellinae* with their minute spiral or elaborate sculpture of the protoconch. *Liracraea* may besides this type of the genus comprise the similarly equipped *Mangilia devia* of Suter, which, however, I had no opportunity to examine.

Fam. **Acteonidae.**

Acteon craticulatus Murdoch & Suter.

North Island: 16, 3 shells, h. 9.

Fam. **Tornatinidae.**

Tornatina decapitata Suter.

Stewart Island: 36a, 5 sps., h. 2.4. — Auckland Island: 43, 1 sp., h. 3.8.

Volvulella reflexa (Hutton).

North Island: 16, 2 shells, h. 4. — 18, 1 sp., h. 4.5.

Fam. **Scaphandridae.**

Cylichna pygmaea Adams.

North Island: 16, 2 sps., h. 4.7.

Cylichna thetidis Hedley.

North Island: 16, 2 shells, h. 7.

Fam. **Aceridae.**

Haminea zelandiae (Gray).

North Island: 28, 1 sp., h. 14.

Fam. **Philinidae.**

Philine constricta Murdoch & Suter.

North Island: 16, 2 sps., h. 13.5 (shell), l. 24 (animal), var. *auriformis* Suter. — Stewart Island: 32, 1 sp., h. 17 (shell), l. 26 (animal), var. *auriformis.*

Philine umbilicata Murdoch & Suter.

North Island: 18, 2 sps., h. 3.3 (shell).

Fam. **Aglajidae.**

Aglaja cylindrica (Cheeseman).

North Island: 13, 1 sp., l. 3.5 (animal).

Fam. **Runcinidae.**

Runcinella zelandica n. gen. n. sp.

(Pl. I, figs. 30—32; text-figs. 6—9.)

Animal small, ovate, rather high, destitute of a shell; back covered with a disc of firm cutaneous consistency, shallowly bilobed in front, with sessile eyes shining through the skin, slightly incurved behind; margin a little projecting all around. Foot broadly ovate, everywhere, except in front, exceeding the notum, with thin simple margins. Anus behind the end of notum, submedian, a little to the right, surrounded by 4—5 gills consisting of radiating lamellae with a few short lateral branches. Genital opening to the right of the anus; right side of the body with an open furrow serving as vas deferens leading to the penis close to the mouth.

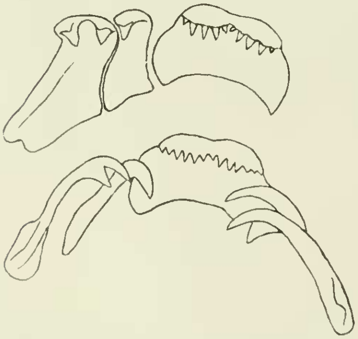

Fig. 6. Radula of *Runcinella zelandica* n. sp.; lateral teeth seen from their upper surface above, from the margin below. × 440.

Colour fulvous on back and gills; sides of foot paler yellowish. Length 2.2, breadth 1.3, height 1 mm.

Radula (fig. 6) with the formula

1. 1. 1. 1. 1., containing 19—22 series of teeth. Its length 0.32, breadth 0.12 mm. Median tooth broad, with a slight middle incision of its edge, carrying 4—6 conical denticles on each side of it, the innermost and outermost ones smallest. Lateral tooth narrow, with a strong bent cusp. Marginal tooth broad, with 2 strong cusps, separated by a deep incision; no denticles on the external teeth.

Gizzard armed with 4 hyaline chitinous crest-like bodies, composed of about 8 thick triangular pieces attached to a common basal plate.

Locality: North Island, Cape Brett, the coast, among large Corallinae (St. 2), several sps., adult as well as young ones.

Remarks. The features stated above, chiefly of the external habitus, are already sufficient to establish the systematical position of this interesting little mollusc in the close vicinity of the genus *Runcina* belonging to the Tectibranchiate Opisthobranchia. With this genus it shares the general organization, absence of shell, position of anus, armature of stomach, and so on. At the same time, however, important differences are striking, above all the place and arrangement of the gills and the structure of the radula (in *Runcina* and *Ildica* having the formula 1.1.1.), characters justifying the creation of a new genus for the reception of the new species. Though the genus *Runcinella* thus occupies a position apart from the other genera of fam. *Runcinidae* it is the most convenient to retain it within this same family, which, as far as hitherto known, constitutes a well defined group of the Cephalaspidea.

Anatomy.

(Text-figs. 7—9.)

Alimentary canal. In the muscular pharynx which is fixed to the body wall by means of muscle cords, a pair of thin membraneous jaws are lodged. The structure of these jaws is similar to that of the jaws in *Runcina* described by Vayssière (1883, pl. 1, fig. 7), thus showing their surface closely beset with small rhomboidal corpuscles, each with a central denticle. A pair of tubular salivary glands debouch at the sides of the oesophagus. This soon opens into the very muscular gizzard. On the left side of the debouching point a short diverticle, like the one described by Colosi (1915) in *Runcina calaritana*, is inserted. It has the same lining epithelium as the gizzard, viz. large glandular cells secreting small yellowish-brown granules. In the gizzard four chitinous masticatory plates are situated, as already mentioned, and these latter are arranged symmetrically, the longitudinal axis passing through the middle of two opposite ones. From the distal end of the gizzard issues the second part of the oesophagus, which soon opens into the stomach. The latter is surrounded by the liver and receives from it a single large posterior duct. A close examination shows that the duct is, in reality, made up by two pairs of large canals, one coming from the right, the other and larger from the left, but pressed secondarily towards the middle. The common liver duct is very short, a fact explaining the diverging opinions about the number of ducts in *Runcina* (cf. Colosi 1915, p. 11). In any case, there is no stomachal epithelium separating the two branches which, consequently, cannot be considered as a pair of ducts. In the left upper portion of the liver the intestine appears as a narrow canal; its walls contain the same yellowish-brown corpuscles as the gizzard, and they lend it a reddish tint in specimens dissected. The intestine describes a curve towards the right side of the body and, from this side gradually approaching the middle line, debouches by the anus somewhat to the right of the middle.

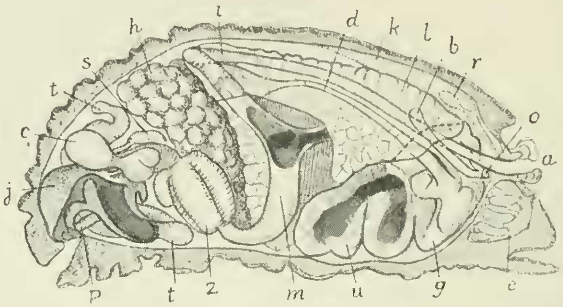

Fig. 7. Longitudinal section through *Runcinella zelandica* n. sp. *a* anus surrounded by gills; *b* bursa copulatrix; *c* cerebral ganglion; *d* vas deferens; *e* opaline gland; *g* shell gland; *h* hermaphrodite gland; *i* intestine; *j* jaw; *k* kidney; *l* liver; *m* stomach; o genital orifice; *p* penis; r pericard; *s* salivary gland; *t* terminal gland of the penis; *u* mucous gland; *z* gizzard.

After the alimentary system the genital one is the most spacious. It consists of two separate portions, the hermaphrodite and the male ones, combined only by means of the external ciliated furrow. In the median part of the body we find the hermaphrodite gland situated to the right of the liver and extending beneath it backwards and above the gizzard in front. Its ovarial acini are arranged peripherically. On its posterior and upper side, just beneath the point where the intestine traverses it, the spermoviduct takes its origin. It follows the left side of the intestine backwards. In front of the rectum it widens to an ampulla, which after some convolution opens in the large, much folded albuminiparous gland. With the same gland, which has a thick cyanophil epithelium, is connected a shell gland with an erythrophil granular epithelium of high cells. From the right side of the gland complex the uterus issues, describes some coils, and opens to the right in the posterior end of the body. Before its mouth it receives a narrow duct which differs from the spermoviduct in lacking in its interior the ciliated epithelium; it ends blindly and is certainly to be interpreted as a bursa copulatrix.

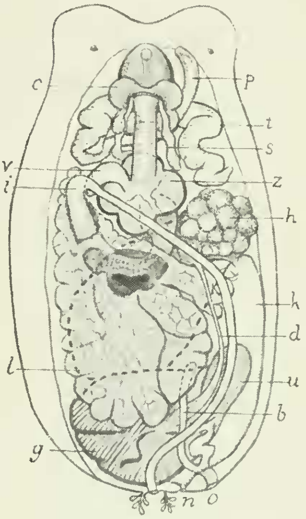

Fig. 8. Scheme of the anatomy of *Runcinella zelandica* n. sp. Notation as in fig. 6; *n* nephroproct.

From the genital pore the seminal groove leads, as mentioned, to the male opening at the side of the mouth. The penis consists of two portions, a narrow and muscular atrial one, the penis proper, and a tubular gland forming a posterior prolongation of the former, somewhat wider than that and composed of large glandular cells. The penis is a muscular cord with a fine central canal allowing the secretion of the tube to pass. The whole apparatus lies freely beneath and to the right of the pharyngeal bulb.

The kidney is a large sac on the right side and has its walls entirely smooth. It extends from the hermaphrodite gland in front, close beneath the tissues of the notum, to the surroundings of the anus, where it forms some small descending lobes. The nephroproct is a simple fissure in its wall, and above it the kidney detaches a lobe which becomes more and more narrow and lastly communicates with the pericard. The latter is rather small, as is the heart too. Its place is somewhat in front of and above the genital opening, thus on the right side, and close outside the intestine.

The nervous system corresponds to the description of the same in *Runcina coronata* given by Vayssière (1883) and in *R. capreensis* (Mazzarelli 1893), thus showing two visceral ganglia, without direct connection with each other.

Opaline gland. Beneath the anus a small pore appears, being the outlet from a rounded sac, otherwise entirely closed and lined with a thin epithelium. This sac contains 7 date-like corpuscles attached with their anterior ends to the front wall of the sac and freely projecting into its interior. The corpuscles prove to be glandular formations. They consist of an outer cutaneous sheath made up by two cell layers and forming a fold from the anterior wall of the sac, and an inner bottle-shaped acinus with a narrow efferent canal opening by a terminal pore; the walls of this canal are similar to those of the sheath thus proving the origin of the glandula by means of invagination (text-fig. 9). The bottom part of the gland is formed by large glandular cells with median nuclei and vividly stained contents (by haematoxylin); among them narrower cells with small apical nuclei and unstained contents appear. The small cells predominate, and the large ones disappear, towards the canal.

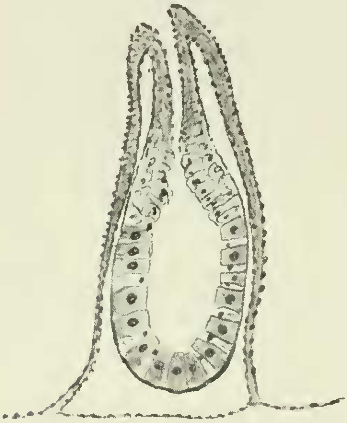

Fig. 9. *Runcinella zelandica* n. sp., section through one corpuscle of the anal (opaline) gland. × 300.

This gland is certainly homologous with the so called opaline gland in *Aplysia* and other genera (also named "grape-shaped" gland or glandula of Bohadsch; cf. Mazzarelli 1893 a), which has become dislocated together with the whole anal tract, and further peculiarly specialized and modified by the folding of the walls of the primarily simple glandular sac.

Conclusions.

From the above examination follows that the genus *Runcinella* is well separated from *Runcina*, above all in the following particulars: Anal and genital apertures are situated in the real posterior end of body; gills 4—5 with a doridoid arrangement round the anus; opaline gland consisting of isolated glandulae enclosed in an infra-anal sac; male opening close at the mouth; penis with a tubular gland but lacking terminal vesicula seminalis; vagina with a simple tubular bursa copulatrix.

Runcinella represents a more advanced and specialized type, though in a few characters (e. g. penis) more primitive, than *Runcina*, with which it shares its chief organization. Its systematical position thus is to be established within the same family. This, beside *Runcina*, contains the genus *Ildica* of Bergh with a single species. The genus *Runcina* comprises the following 5 species: *R. coronata* Quatrefages 1844, *capreensis* Mazarelli 1893, *calaritana* Colosi 1915, *prasina* Mörch 1863 and *inconspicua* Verrill 1903.

Colosi (1915) arrives at the conclusion that the fam. *Runcinidæ* should be removed from the Cephalaspidea (Bullidea) and made the type of a coordinate group Runcinidea. His opinion is, however, in some cases, e. g. concerning the genital system, based on interpretations of facts which seem to be debateable. In the present species at least the structure of the genital apparatus entirely corresponds to the Cephalaspidean type (type I in Lang, 1900), and there is no other character (except the gills) in which it differs properly and positively — the absence of a shell being, of course, insufficient to motive a separation, as a reduction of the shell is more or less complete in many Bullomorph genera.

Fam. **Pleurobranchidae.**

Bouvieria (*Pleurobranchus*) *aurantiaca* Risso.

Stewart Island: 34, 1 sp., l. 18 (animal). — Auckland Island: 41 (Masked Island), 1 sp., l. 9 (animal).

Bouvieria (*Pleurobranchus*) *ornata* Cheeseman.

North Island: 17, 2 sps., l. 30 (animal). — 19, 1 sp., l. 7 (animal). — See Addenda p. 86.

Pleurobranchaea maculata (Quoy & Gaimard).

South Island: Cloudy Bay, 19 fms, 19/1 1915, 1 sp., l. 30 (from Capt. Bollons, "Hinemoa").

Pleurobranchaea novae=zealandiae Cheeseman.

North Island: 10, 1 sp., l. 10. — 25, 1 sp., l. 19. — South Island: 29, 5 sps., l. 35.

Fam. **Goniodorididae**.

Acanthodoris molicella Abraham.

Campbell Island: 44, many sps., l. 30. — Auckland Island: 40, 1 sp., l. 20.

Fam. **Dorididae**.

Doris nanula (Bergh).

Auckland Island: 43, 5 sps., l. 20.

Rostanga rubicunda (Cheeseman).

North Island: 4, 1 sp., l. 11.

Alloiodoris lanuginata (Abraham).

(Pl. I, figs. 33, 34; text-figs. 10—13.)

North Island: 5, 1 sp., l. about 20 (reddish-brown with a series of black spots along each side of the back). — 17, 1 sp., l. 31 (colour rosy). — South Island: 29, 1 sp., l. 8. — Campbell Island: 45, 1 sp., l. 35 (colour white).

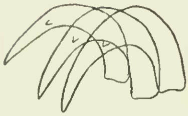

Fig. 10. Three of the innermost teeth of the radula af *Alloiodoris lanuginata*. × 150.

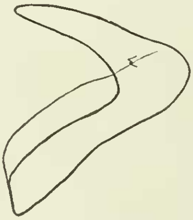

Fig. 11. The 20th tooth in a row from the radula of *Alloiodoris lanuginata*. × 150.

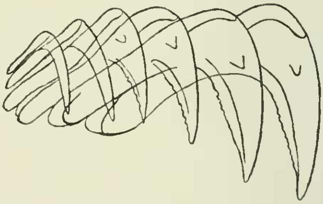

Fig. 12. The 6 uttermost teeth in a row from the radula of *Alloiodoris lanuginata*. × 150.

In the size of the radula and the shape of the teeth the present specimens (text figs. 10—12) seem to differ from the type described by Eliot (1907, p. 333). In two specimens examined the radula had 18 (+ 2 incomplete) rows, the largest with about 40 hamate teeth on each side of the bare rhachis; each tooth with a bifid or trifid denticle at the outer side of the cusp (text-fig. 11). Penis (text-fig. 13) and vas deferens were armed with series of small hooks in two specimens, but in one (from Campbell Island) the hooks were replaced by sac-shaped projections with inflated ends. In the characters of the labial disc, where the elements were indistinct, and of the separate hermaphrodite gland the specimens exhibited the typical features.

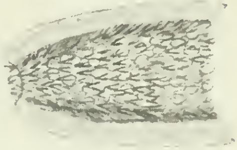

Fig. 13. Armature of the penis of *Alloiodoris lanuginata*. × 75.

Chromodoris amoena Cheeseman.

North Island: 5, 1 sp., much contracted, l. 24 mm. Though the specimen is decolorated, the mantle margin as well as the back of the foot still show a deeper yellowish tint than the body in general. The radula is large with about 100 rows, the largest containing about 100 teeth, and these agree, as do the radula and the armature of the labial disc, in all the characters described by Eliot (1907, p. 345).

Aphelodoris luctuosa (Cheeseman).
(*A. cheesemani* Eliot).

South Island: 29, 1 sp., l. about 30, of an ivory-white colour; the radula contained only 21 rows of teeth which are in complete accordance with the description by Eliot (1907).

As to the name of the present species, Eliot (1907, p. 343) states its identity with *Doris luctuosa* Cheeseman, but maintains that this specific name is to be rejected, because at the time when the species was referred to *Aphelodoris*, viz. 1907, there was already an *Aphelodoris luctuosa* described by Bergh in 1905. As, however, Cheeseman's name dates from 1882, it has priority and must be considered valid, and, for the same reason, the later described species (from Tasmania), which can, according to Eliot, hardly be the same, has to take a new name. This may suitably become *Aphelodoris berghi*.

Fam. **Aeolidiidae**.

Cuthona zelandica n. sp.

(Pl. I, fig. 35; text-fig. 14.)

Body very slender, tapering backwards, foot narrow, with rounded anterior corners and thin margins. Rhinophores smooth, equalling the tentacles in length. Dorsal papillae elongate, linear, a few with bifid tops, set in about 15 transverse rows, the foremost 5 rows a little separated from the sequent ones; the largest rows, 5 and 6, containing each 9—10 papillae on each side. Genital orifice beneath the 4th row of papillae; anus close behind the genital pore. Glans penis conical, without any armature. Colour of the papillae (in spirit) pale brown, tips whitish; colour of foot and head whitish.

Jaws with one row of minute denticles at the masticatory margin. Radula with 60 series of arched teeth (text-fig. 14) with a strong but not much prominent central cusp and 6 smaller denticles on each side decreasing in size towards the base, the innermost denticle often very slender and shorter than its neighbour. Basal processes lodged in an articulatory hole on the under side of each preceding tooth. Breadth of radula 0.12 mm, length of teeth 0.12 mm.

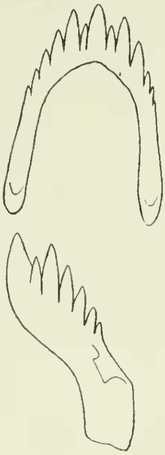

Fig. 14. A tooth from the radula of *Cuthona zelandica* n. sp., seen from above and from the side. × 440.

Dimensions: Length of animal 15, breadth 4, br. of foot in front about 2 mm. — Locality: Auckland Island: 41 (Masked Island), 1 sp.

This species is a true *Cuthona*, differing, however, from the mass of congeneric species in the unusual length of its radula, a feature that it shares with the British *C. stipata* Alder & Hancock. The genus lacks further representatives in N. Zealand and even in Australia.

Fam. **Fionidae**.

Fiona pinnata Eschscholtz (=*marina* Forskål).

Campbell Island: 44, 2 sps., l. 60.

Fam. **Ellobiidæ** (=**Auriculidae**).

Marinula (*Cremnobates*) *parva* (Swainson).

Auckland Island: 37, close to the high water line, 24/11 1914, en masse, l. 6.8. — 38, 1 sp., l. 6. — Connolly (1915) in dealing with the genus *Marinula* includes this form and regards *Cremnobates* as synonymous; cf. also Iredale 1915. — See Addenda p. 86.

Fam. **Amphibolidae**.

Amphibola crenata (Martyn).

North Island: 8, 1 sp., h. 22.

Fam. **Siphonariidae**.

Siphonaria cookiana Suter.

North Island: 17, many sps., l. 27. -- South Island: 30, 2 sps., l. 10 (on *Turbo smaragdus*). — Stewart Island: 36, many sps., l. 25.

Siphonaria obliquata Sowerby.

Auckland Island: 37, many sps., l. 35.

Siphonaria zelandica Quoy & Gaimard.

North Island: 19, 1 shell, l. 13.

Kerguelenia innominata Iredale.
(=*Siphonaria lateralis* Gould, by Suter).

Auckland Island: 37, en masse, l. 19. — 39, 1 sp., l. 7.

Fam. **Ancylidae**.

Latia neritoides Gray.

North Island: Lake Takapuna, Auckland, 23/12 1914, many sps., l. 8.7. — The anatomy of this species has been recently described by Eales (1923).

Fam. **Zonitidae.**

Hyalinia cellaria (Müller).

North Island: Lake Takapuna, Auckland, 23/12 1914, 1 sp., d. 9.5.

Fam. **Helicidae.**

Helix aspersa Müller.

Auckland, under stones, 2 sps., d. 26.5.

Fam. **Endodontidae.**

Thalassohelix zelandiae (Gray).

Stewart Island, Port Pegasus, under wood or stones, 21/11 1914, 1 sp., d. 11.

Allodiscus planulatus (Hutton).

Auckland Island, under wood or stones, 25/11 1914, 5 sps., d. 2.7.

Thermia expeditionis Suter.

Auckland Island, under wood or stones, 25/11 1914, 1 sp., d. 2.7, h. 1.9, whorls 4 1/2; base with microscopic striae. — Adams Island, Auckland Island, under wood, 28/11 1914, 1 sp., d. 2.7.

Therasia antipoda (Hombron & Jacquinot).

Adams Island, Auckland Island, under wood, 28/11 1914, 1 sp., d. 6.

Flammulina zebra (Le Guillou)
(=*phlogophora* Pfeiffer, by Suter).

Stewart Island, Port Pegasus, under wood or stones, 21/11 1914, 2 sps., d. 8.

Ranfurlya constanceae Suter.

Auckland Island, Amokura Harbour, under wood in the forest, 1/12 1914, 2 sps., l. 10.5. Suter's specimen measured 6 mm.

Charopa (Endodonta) benhami Suter.

Auckland Island, under wood or stones, 25/11 1914, many sps., d. 2.9, h. 1.6. — Adams Island, under wood, 28/11 1914, 3 sps., d. 2.7, h. 1.3, h. of aperture 1 mm, whorls 6.

Charopa (Endodonta) pseudocoma Suter.

Palmerstone, Febr. 1915, 8 sps., d. 5.5.

Fam. **Bulimulidae.**

Placostylus hongii (Lesson).

Cape Maria van Diemen, Dec. 1914, 3 shells, h. 75.

Fam. **Rhytididae.**

Paryphanta hochstetteri (Pfeiffer).

N. Zealand, without definite locality, 3 sps., d. 64.

Fam. **Athoracophoridae.**

Athoracophorus verrucosus Simroth.

Auckland Island: Amokura Harbour, under wood in the forest, 1/12 1914, many sps., l. 34 (var. *fasciatus* Simroth). — Adams Island, under wood, 1 sp., l. 34, 28/11 1914 (var. *fasciatus*).

Athoracophorus martensi Suter.

Auckland Island: Amokura Harbour, under wood in the forest, 1/12 1914, many sps., l. 28.

Fam. **Onchidiidae.**

Onchidella campbelli Filhol.

Stewart Island: 33, many sps., l. 9. — 34, many sps., l. 10. — 36, many sps., l. 8. — Auckland Island: 37, close to the high water line, numerous sps., l. 19. — 40, 3 sps., l. 10. — Campbell Island: 44, 2 sps., l. 8.

Onchidella flavescens Wissel.

North Island: 15, 1 sp., l. 11.

Onchidella nigricans (Quoy & Gaimard).

North Island: 7, 8 sps., l. 10. — 28, 1 sp., l. 10.

Onchidella patelloides (Quoy & Gaimard).

North Island: 7, 6 sps., l. 10. — 15, numerous sps., l. 17.

Scaphopoda.

Dentalium nanum Hutton.

North Island: 10, 1 sp., l. 37; anterior 3/5 of the shell without costae, only with fine radiating striae, posteriorly with 13 ridges. — 16, 2 sps., l. 29. — 18, 2 sps., l. 20. — 25, 1 sp., l. 12.

Dentalium zelandicum Sowerby.

North Island: 11c, 1 sp., l. 41. — Stewart Island: 35, 2 sps., l. 83.

Cadulus spretus Tate & May.

North Island: 16, numerous sps., l. 5.5.

Lamellibranchiata.

Fam. **Solemyidae.**

Solemya parkinsoni Smith.

North Island: 23, 1 shell, l. 40.

Fam. **Nuculidae.**

Nucula hartvigiana Pfeiffer.

North Island: 12, 2 sps., l. 7. — 13, 1 sp., l. 4.3. — 18, 1 small sp. — 22, 1 small valve. — South Island: 29, 2 sps., l. 9. — Auckland Island: 41 (Masked Island), 2 sps., l. 8.

Nucula nitidula Adams.

North Island: 16, many sps., l. 8.

Nucula simplex Adams (=*strangei* Adams).

North Island: 16, some small sps. — 18, some small sps.

Fam. **Ledidae**.

Nuculana (Leda) bellula Adams.

North Island: 16, many sps., l. 11. — 18, many valves, l. 8. — Auckland Island: 43, many sps., l. 8.

Malletia australis (Quoy & Gaimard).

North Island: 13, 1 sp., l. 22 + 3/2, l. 31. — 18, 1 small valve.

Fam. **Anomiidae**.

Anomia huttoni Suter.

South Island: 29, 1 sp., l. 25.

Anomia walteri Hector.

North Island: 7, 2 sps., l. 52.

Fam. **Arcidae**.

Arca novæ-zealandiæ Smith (=*decussata* Sowerby in Suter).

North Island: 4, 3 sps., l. 4 + 3/2, l. 20. — E. A. Smith (1915) points out the specific distinctness of this form.

Bathyarca (Arca) cybaea Hedley.

North Island: 16, 3 valves, l. 4. — 18, some small valves.

Glycymeris laticostata (Quoy & Gaimard).

North Island: 11a, 2 sps., l. 54. — 11b, 1 sp., l. 9.

Glycymeris modesta (Angas).

North Island: 11a, 2 sps., l. 18. — 3 1/2, l. 20. — 11b, 6 sps., l. 19. — 16, many sps., l. 13. — 22, 4 sps., l. 13.

Fam. **Limopsidae**.

Lissarca aucklandica Smith.

Auckland Island: 37a, 2 sps., l. 3.3. — 41, (Masked Island), numerous sps., l. 3.5. — 41, (Figure 8 Island), some very small sps. — 43, some sps., l. 5.

Fam. **Philobryidae.**

Philobrya filholi Bernhard.

North Island: 2, many sps., l. 1.4.

Philobrya meleagrina (Bernard).

North Island: 3, many sps., h. 3.5. — 9, some sps., h. 5.7.

Fam. **Mytilidae.**

Mytilus planulatus Lamarck.

North Island: 3, many small sps. — 28, 1 small sp. — Stewart Island: 31, many sps. — 11, 6 sps., l. 96. — Auckland Island: 37, many sps., l. 100. — 38, many sps., l. 42. — 40, 2 valves, l. 135, overgrown with calcareous algae. — Campbell Island: 44, 1 sp., l. 84.

Oliver (1923) has shown that the species which Suter named *Mytilus edulis* is identical with the Australian *Mytilus planulatus* Lamarck, which differs from the Linnean type in having 2—3 teeth placed inside the apex, not on an expanded lip. A good discriminating character is offered by the muscle scars: in *M. planulatus* that of the anterior adductor is small and shorter than the scar of the anterior retractor, whereas the latter scar is shorter than the former in *M. edulis.* Oliver gives the maximum length of the species as 89 mm, but from the present collections I have larger specimens (135 mm; cf. above) at hand.

Mytilus canaliculus Martyn.

North Island: 3, 4 sps., l. 70. — 19, 1 sp., l. 45. — 28, some sps., l. 37. — Auckland Island: 39, 1 sp., l. 50. — 40, 1 shell, l. 20. — 41, (Masked Island), 1 sp., l. 33. — Campbell Island: 44, many sps., l. 54.

Mytilus magellanicus Lamarck.

South Island: 29, many sps., l. 43. — Stewart Island: 31, many sps., l. 57. — 32, 2 sps., l. 70. — Auckland Island: 38, 2 sps., l. 42. — 39, some sps., l. 85. — 37, many sps., l. 56. — 41, (Figure 8 Island), some small sps., on a *Macrocystis.* — 41 (Masked Island), many sps., l. 71.

Modiolus neozelanicus Iredale
(=*ater* Zelebor, non Molina).

North Island: 3, many small sps. — 26, some small sps. — 28, 1 small sp. — Auckland Island: 37, 2 sps., l. 27 (close to the high water mark). — 38, many sps., l. 30. — 39, 1 sp., l. 21.

Modiolus australis Gray.

North Island: 2, 1 sp., l. 17. — 24, 4 sps., l. 46. — South Island: 29, 4 sps., l. 38. — Auckland Island: 41 (Masked Island), 1 small sp.

Modiolaria impacta (Hermann).

North Island: 3, many small sps. — 15, 6 sps., l. 26. — 21, 1 sp., l. 15. — 22, 3 sps., l. 40. — 28, 1 small sp. — South Island: 29, many sps., l. 43. — Stewart Island: 32, 2 sps., l. 26.

It may be according to a strict application of the nomenclatory rules that Iredale rejects the generic name *Modiolaria* in favour of *Musculus* Bolten, but as this genus is a conglomeratic one and comprises also *Anodonta*, and in first case is synonymous with *Anodonta*, it seems most convenient to me to make no exchange of *Modiolaria* Beck.

Lithophaga truncata (Gray).

North Island: 11d, 1 sp., l. 26.

Dacrydium radians Suter.

North Island: 16, 8 valves, l. 4.5.

Fam. **Pectinidae**.

Pecten medius Lamarck.

North Island: 10, 3 sps., l. 72. — 16, 6 sps., l. 69. — South Island: 29, 4 sps., l. 7.

Chlamys campbellicus n. sp.
(Pl II, figs. 36—39.)

Shell of medium size, solid, both valves equally convex; ears very unequal, sharply set off from the valve by means of a sharp furrow, the anterior ears large, posterior less than half the anterior in length. Sculpture: Right valve, about 22—24 high regular ribs, bifurcating towards front and hind margins and becoming tripartite towards under margin by the appearing of a marginal furrow along each side of the ribs; interstices as broad as the ribs and sculptured with fine, close, concentric lamellae with serrated upper edges, or dissolved into isolated spinulæ; these lamellae extend on the lateral sides, and, though more or less worn off, on to the upper side of the ribs. Anterior ear with 5 coarse radiating ribs and a smooth area beneath running from sinus to umbo; bounding groove of the ear serrated by a series of small tubercles. Left valve: Ribs of the same number as in the right valve; concentric lamellae produced on the ribs into small imbricating scales. Colour of both valves orange rosy. Dimensions: max. h. 32, br. 29 mm. Locality: Campbell Island: 45, 10 dead valves, the small ones having a fresh appearance showing that the species belongs to the actual fauna.

Its nearest ally seems to be *Chlamys patagonicus* King, which occurs in West Patagonia from 50° S to Tierra del Fuego and on the Eastern coast of Patagonia to 51° 30' S as well as in the Falkland Islands (Hägg 1910). The chief differences between both forms are to be found in the greater number of ribs in the latter species (about 35 on the disc and in the right anterior ear 6), together with a paler reddish-gray colour. The partition of the ribs is similar, but *Chl. patagonicus* often shows a bifurcating of the median ribs towards the inferior margin, and has, besides, an intermediate riblet in each interstitial furrow; a similar intermediate riblet is totally absent in *Chl. campbellicus.* — The fossil *Pecten triphooki*, Zittel, which has been found fossil in Campbell Island (Marshall 1909, p. 701), seems to be closely related, too.

Chlamys (Pecten) dichrous Suter.

South Island: 29, many sps., h. 36. — Stewart Island: 31, 1 sp., h. 31. — 35, 1 small sp. — Auckland Island: 37a, 3 valves, h. 12.

Chlamys (Pecten) imparvicostatus Bavay.

North Island: 11b, 1 sp., h. 7.2.

Chlamys (Pecten) radiatus Hutton.

North Island: 10, 2 sps., h. 26. — 14, 1 small sp. — 16, many valves, h. 40. — South Island: 29, 1 valve, h. 35. — Stewart Island: 32, 1 sp., h. 35.

Chlamys (*Pecten*) *zelandiae* Gray.

North Island: 1, 1 fragment. — 2, 2 sps., h. 11 (var. *gemmulatus* Suter, non Reeve)[1]). — 4, 2 sps., h. 16.5 (var.). — 11a, 4 sps., h. 27. — 11d, 1 sp., h. 25. — 16, 3 sps., h. 17. — South Island: 29, 1 sp., h. 40 (var. *gemmulatus*). — Stewart Island: 32, 3 sps., h. 71 (var. *gemmulatus*. The last mentioned specimens much exceed the size stated by Suter for the species).

Chlamys (*Pecten*) *convexus* Quoy & Gaimard.

North Island: 1, 2 sps., l. 15. — 10, 2 sps., l. 52. — 16, 1 + 3/2 sps., l. 27.

Fam. **Limidae.**

Lima bullata (Born).

North Island: 10, 1 sp., h. 10. — South Island: 29, 1 valve, h. 19.5.

Lima suteri Dall.

North Island: 16, 2 valves, h. 5. — 18, 1 valve, h. 7.

Fam. **Ostreidae.**

Ostrea angasi Sowerby.

North Island: 22, 1 sp., h. 57. — South Island: 29, 3 coherent sps., l. 58. — Stewart Island: 31, 1 sp., h. 40.

Ostrea hyotis (Linné).

North Island: 15, 1 sp., h. 61. — 27, some sps., l. 50.

Fam. **Gaimardiidae.**

(=*Modiolarcidae.*)

The characteristics of this family are in the first line the foot which has a creeping disk, and the triforic mantle with a small pedal, a ventral branchial, and a posterior anal opening. The gills have a varying structure as to the genera; they are of the eulamellibranchiate type and are fused to each other and to the mantle at the anal slit. The intestine runs directly, in a slight curve backwards from the stomach, from which it issues on the right side.

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[1]) Iredale (1915) points out the distinctness of Suter's variety from *P. gemmulatus* of Reeve.

Concerning the hinge, a great variation also prevails. The teeth may be completely reduced, or they are present in a vestigial shape only, or finally, they are well-developed. The hinge seems to represent the cyrenoid type as well as the lucinoid one of Bernard; thus in *G. faba* and *trapezina* we find the latter, as well as in *Kidderia bicolor* and in *G. smithi* (which may be a *Kidderia*; cf. Hedley 1916, pl. II, figs. 17—19), and in *Neogaimardia* the former. The ligament is external or subinternal in *Gaimardia*, subinternal in *Kidderia* and distinctly internal in the new genus *Neogaimardia*.

To this family I refer the genus *Gaimardia* (=*Modiolarca;* for the change of name cf. Iredale 1915) and the closely related *Kidderia* Dall 1876, as well as the new *Neogaimardia* (type *Kellia rostellata* Tate). The interrelation of these genera which are all represented in the New Zealand fauna, is shown in the following scheme:

I. Animal with 2 gill plates on each side.

A. Gills with well-developed interlamellary septa extending nearly all along the height of the lamellae; plates folded between them; foot with mucus pore separated from byssus furrow; ventral mantle suture shorter than the branchial opening. Shell rhomboid, with anterior rostrum; hinge of the lucinoid type with indistinct teeth; ligament subinternal or external *Gaimardia* Gould 1852.

Type: *G. trapezina* (Lamarck).

B. Gills with incomplete interlamellary septa (present in the marginal part only, about 1/3 of the height), plates simple, smooth; foot with mucus pore debouching in the front end of byssus furrow; ventral mantle suture longer than both siphonal slits together. Shell elongate, rostrum indistinct *Kidderia* Dall 1876.

Type: *K. minuta* Dall.

II. Animal with 1 gill plate on each side (= the inner or anterior one of the preceding group); no interlamellary connection in the gill; foot and mantle sutures as in *Gaimardia.* Shell orbicular, with a dictinct rostrum; hinge teeth of the cyrenoid type, strong; ligament short, internal.

Neogaimardia n. gen.

Type: *Kellia rostellata* Tate.

A comparison of the hinge elements makes it evident that in this family the two chief types of Bernard are manifested. I have

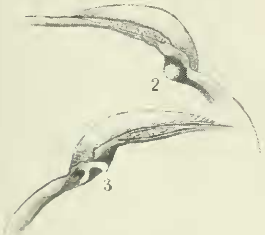

Fig. 15.
Hinge of *Gaimardia acrobeles.*

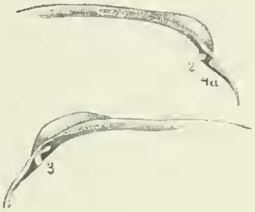

Fig. 16.
Hinge of *Kidderia bicolor.*

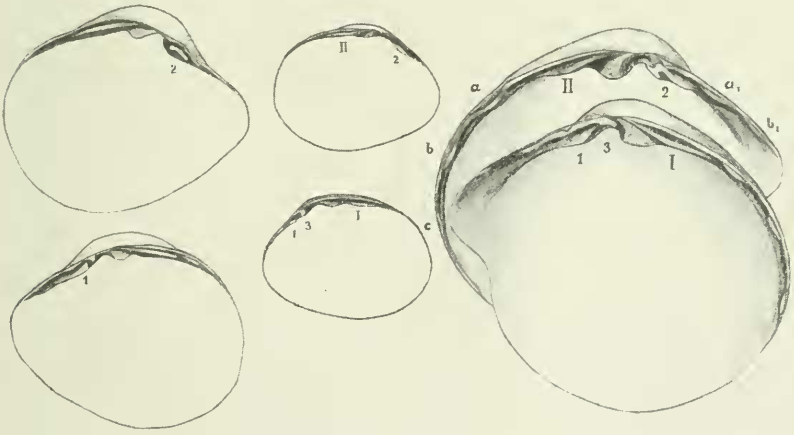

Fig. 18. Fig. 17. Fig. 19.
Three stages in the development of the shell and hinge of *Neogaimardia rostellata.*

examined the hinge in *G. faba* and *G. acrobeles* (text-fig. 15) — in the latter it is rather well developed — and in both there is only one small cardinal in the left valve being the ventral one in the hinge and thus = 2, according to Bernard's nomination; it is surrounded by two right cardinals, thus 3a and 3b, according to Bernard. An indistinct swelling of the hinge plate in front of tooth 3a represents a 5a. In the left valve a small 4a is visible in front of 2 and behind it a 4b, which may be well developed or indistinct in *G. acrobeles.*

In *Kidderia bicolor* v. Martens (from S. Georgia; text-fig. 16) the conditions are the same: teeth 2 and 3a are the largest, 4a and 3b smaller.

Bernard (1898) has stated the same type in the prodissoconch of *Modiolarca pusilla.*

Neogaimardia rostellata Tate represents a different arrangement. In a small specimen (l. 1 mm; text-fig. 17) a single tooth 2 is present in the left valve, this fits in a socket in front of tooth 3a in the right valve; a small swelling before 3 represents a tooth 1. In a somewhat larger stage (l. 1.5 mm; text-fig. 18) tooth 2 has got a slight sinus on its inner side and comprises tooth 1, and this state of affairs becomes much more obvious in the adult shell (text-fig. 19) where also tooth 2 has acquired a hook-like shape round tooth 1. 4a (a_1 in the figure) has been removed farther towards front, and so has 5a in the right valve.

The coexistence of both these types within the same family is certainly a sign of primitivity. So are also the features of the ligament which is often very indistinctly limited and may vary between external and internal position.

Concerning the structure of the gills this family exhibits a parallel to the Cyrenacea (*Cyrenidae* and *Sphaeriidae*); also in this group we find simple as well as folded gills and even a reduction of the posterior (or outer) demibranch, no doubt as a consequence of the incubatory development and its accumulative nursing of juvenile characters respectively arresting of progressive modification. Thus the single gill in *Neogaimardia* is certainly to be comprehended as a secondary apparition due to reduction, in the same way as the similar condition in the single-gilled subgenus *Neopisidium* of the freshwater mussels *Pisidium* (cf. Odhner 1923).

To *Neogaimardia* also belongs *Gaimardia tasmanica* Beddoms, according to specimens sent by the Australian Museum.

Gaimardia acrobeles Suter.

Auckland Island: 37, many shells, l. 5.6.

Kidderia campbellica n. sp.

(Pl. II, figs. 42—44, 56.)

Shell small, oblong, a little narrower at the anterior end, inflated, yellowish-gray and brown. Beaks a little produced, broadly rounded, situated a little above the front end which projects, narrowly rounded, below them. Basal margin slightly curved, posterior end broadly rounded, dorsal margin evenly convex. Sculpture faint irregular lines of growth; besides these a trace of some radial lines or rugations in the median part of the shell; a faint dorsal ridge (indistinct in old specimens) extends diagonally from the umbones to the dorso-posterior margin. Colour yellowish-gray, posterior and dorsal parts usually dark-brown, interior grayish-white, usually brownish posteriorly and dorsally. Interior surface grainy, only edges without the pallial line smooth and shining. Margins smooth, sharp. Ligament external, very long. Hinge perfectly tooth-less. Anterior adductor scar subcircular, smaller than the oblong posterior one and distinctly impressed. Dimensions: L. 6.5, h. 4.5, br. 3 8 mm. — Locality: Campbell Island, 45, numerous sps.

Externally the new species has a great resemblance to *K. bicolor* v. Martens (from S. Georgia), but that species is more elongate (with subparallel margins), and the new species differs from it and from any other species of the genus (thus also from *K. pusilla*) in being edentulous even in young stages of growth; only in one small specimen of 2.5 mm length a very indistinct right cardinal tooth was observed.

The animal has a very short pedal slit of the mantle, its length being smaller than the diameter of the anterior adductor. In *K. bicolor* this slit is twice that diameter. The pedal opening has smooth margins, then follows a long suture and, posteriorly, the large branchial slit with finely papillate margins and, above it, the anal slit with smooth margins. Between the two openings a pair of small papillae or tentacles are visible.

Many of the specimens collected contained fry in their gills, but such were observed only in the inner gill on each side, and in small number. In *K. bicolor*, on the contrary, both demibranchs at each side serve as brood-pouches and contain numerous young, as made evident by examination of specimens from S. Georgia. Also in *K. campbellica*, however, there is a free communication between the gill chambers due to the suspension of the gill axes which are free, except for their ends. By means of the anal slit the gill chambers communicate with the exterior. In their finer structure the gills, as already mentioned, are smooth, not folded. There are, however, many interlamellary connectives, though limited to the marginal parts of each demibranch. In the margin of each reflected lamella a marginal venous vessel is contained.

The front margin of each demibranch is furnished with a fine longitudinal furrow.

The foot consists of an anterior fingershaped portion and a broader posterior one, the latter containing the large byssus cavity preceded by a mucus gland which debouches in the anterior end of the byssus groove.

Both pairs of labial palps are well developed. There is a long oesophagus. The stomach chiefly consists of two portions: a large cardiac and a smaller pyloric sac, the latter evidently homologous with the crystalline coecum, though containing only ciliated epithelium and no excretion. The former portion is lined with a stomachal cuticula and is dorsally furnished with a short curved coecal appendage. Only one liver duct is present on each side of the stomach under the entrance of the oesophagus. The intestine issues from the right basal part of the pyloric sac, describes a short coil towards front and then runs with a dorsal curve through the heart to the anus.

The gonads form a pair of few-lobed bunches in the posterior half of the visceral hump. They debouch in a pair of papillae on each side of the foot retractors within the inner gill room and beneath the fundus of the pericardium.

Behind the pericard and surrounding the foot retractors lie the nephridia which begin with long pericardial tubes. These debouch dorsally in the posterior part of the outer sacs. The latter communicate medially by means of a short opening in their walls. They debouch separate from and opposite to the gonads.

Kidderia costata n. sp.

(Pl. II, figs. 45—47.)

Shell small, ovate-oblong, thin, fragile, compressed, especially below the middle, very inequilateral; umbones broad, flattened, in the foremost part of the upper side. Front margin abruptly descending, but little convex, strongly bent into the almost straight under side, hind margin produced-rounded, upper margin long, a little curved. Sculpture: 14 strong radiating costae, strongest in the left valve, of which 9 directed to the posterior margin somewhat flexed upwards with their ends, elevated, rather compressed (most so the uppermost ones), and 5 lower costae in the median part; front half of the shell without radiating sculpture; besides irregular concentric lines, in the posterior and upper parts raised as lamellae crossing the costae and lending them a subsquamose appearance. Colour white, dorsally brownish. Interior white, brownish behind and above; mantle line with a very small sinus below the posterior adductor. Anterior adductor scar small, ovate, not distinctly separated above from the retractor scar, posterior one broader, rounded ovate. Hinge-plate narrow. Hinge: left valve with a single median cardinal; shell margin depressed on both sides of it; right valve with 2 prominent stout teeth embracing the left one, and fitting into the sockets of the left valve margin; no cardinals in either valve. Ligament external, long, thin, with a strong resilium. Dimensions: L. 4, h. 2.6, crass. 2.2 mm. — Locality: Auckland Island: 41 (Masked Island), 1 empty, somewhat injured shell.

Externally this species is strikingly similar to a *Cardita calyculata;* but the hinge shows quite different characters and proves that it is referable to the genus *Kidderia.* It is similar to *K. bicolor* in the teeth and the shape of ligament and protoconch; only a slight difference is present between their left valves which is, however, easily explainable in the obliteration of the foremost tooth (4a) of the new species; even in *K. bicolor* it is not constant. A further difference is that in *K. bicolor* the retractor muscle scars are well separated from the adductorial ones. Also in *K. bicolor* a tendency to forming a small sinus of the mantle line is observable. The participating of the shell margin in forming the left cardinal sockets is no doubt a secondary apparition.

Neogaimardia rostellata (Tate).

(Pl. II, fig. 57; text-figs. 17—19.)

Mr. Hedley, who has kindly verified the identificaton of specimens sent, communicated me the following references concerning the literature about *Neogaimardia rostellata*, which is new to New Zealand:

Kellia rostellata Tate, Trans. Roy. Soc. S.A., xi, 1889, p. 63, pl. xi, fig. 14.

Kellia rostellata Wilson, Proc. Roy. Soc. Vict., ii, 1890, p. 64—67.

Kellya rostellata Tate & May, P.L.S.N.S.W., xxvi, 1901, p. 432.

Kellia rostellata Pritchard & Gatliff, Proc. Roy. Soc. Vict., xii, 1904, p. 225.

Neolepton rostellatum Hedley, P.L.S.N.S.W., xxx, 1906, p. 542, pl. xxxi, figs. 3, 4.

Neolepton rostellatum Verco, Trans. Roy. Soc. S.A., xxxi, 1907, p. 106.

Neolepton rostellatum Gatliff & Gabriel, Proc. Roy. Soc. Vict., xxi, 1908, p. 389.

Neolepton rostellatum May, Check-List Moll. Tasm., 1921, p. 19.

Neolepton rostellatum May, illustrated Index Tasm. Shells, 1923, pl. viii, fig. 12.

Localities: North Island: 3, numerous sps., l. 2.8. — 21, masses of small sps.

The habitat in Australia of this species was communicated by Mr. Hedley thus:

Type locality: Port Phillip Heads, Victoria, 7—9 fms, on sea weed (Wilson). — Guichen Bay, alive, Lacepede Bay and Mac Donnell Bay, S. Australia (Verco), King Island, Tasmania (May).

Mr. Hedley further informs me that, according to his opinion, this form is referable to *Gaimardia*. This relationship has been corroborated by my examination of the anatomy and the hinge, but differences prevail which make necessary the creation of a new genus for the present species.

Hedley (1906, cf. above) has given a figure of this shell and its hinge. This differs, as already mentioned, from the normal type of the family in being of the cyrenoid structure with a tooth 1 in the right valve embraced by tooth 2 of the left one. Besides the characteristic hinge teeth there are some peculiar accessory marginal teeth. There are in both valves 3 posterior and 2 anterior ones, and between them small sockets for receiving the teeth of opposite valves. That these teeth are an accessory formation is evident from a comparison with a young shell: here no marginal teeth of this kind are visible. Similar teeth, though fewer in number, are to be observed also in species of *Gaimardia*, e. g. *G. acrobeles.*

The animal of *Neogaimardia rostellata* has its coalesced mantle edges pierced by three openings: a small pedal slit in the anterior sinus behind the rostrum, a long branchial one ventrally, and an anal opening behind. From *Kidderia* it differs in the mutual length of slits and sutures, and in the same respects it approaches *Gaimardia.* Between the posterior slits which have both smooth margins, like the pedal one, a pair of papillae are situated.

The gills are reduced to comprise only one demibranch on each side, viz. the inner or anterior one, the posterior or outer gill plate being entirely obliterated. The demibranch has its filaments directed in the length of the body and is smooth, not plicated: both its direct and its reflected lamella are well developed. In both lamellae there are many interfilamentary junctions, but no interlamellary ones exist at all. The upper margin of the inner lamella contains a venous blood vessel and is fused to the body at the sides of the foot; both demibranchs likewise join their inner margins behind the foot. The posterior margin of the direct lamella represents the gill axis and is fused to the mantle in its whole length. Thus a spacious chamber occupies the interior of each demibranch, communicating with the exterior only by means of the anal mantle opening; this room serves as a brood-pouch and was in many specimens filled with fry.

The foot is furnished with a broad sole and contains a large byssus gland secreting a bristle of coarse byssus rods. In front of the byssus groove is a separate pore, the mouth of a mucus gland, quite as in *Gaimardia.* The retractor muscles of the foot are very strong.

The pedal ganglia are situated far towards front. The statocysts at their upper sides contain one statolith each.

At the sides of the broad mouth 2 pairs of well developed labial palps are present. The oesophagus is of moderate length. The cardiac portion of the stomach is produced on the left side to a straight caecum; it is lined with a cuticule and receives one liver duct on each side. Downwards it passes on the left side into the pyloric sac lined with high ciliated epithelium. From the proximal portion to the right issues the intestine, which bends directly down and passes slightly curving through heart to anus.

On the under sides of the foot retractors a pair of small papillae are visible; here the genital ducts open. The sexes are separated and the gonads occupy the posterior part of the body hump. In female individuals very large eggs are seen in follicles which are formed as in *Pseudokellya* (cf. Pelseneer 1903).

The nephridia are comparatively small; they have long pericardial tubes and long communication; for the remaining part their outer sacs have smooth walls, and open opposite the genital pores, in the corner between foot retractors and visceral hump.

Fam. **Crassatellidae**.

Crassatella aurora Adams & Angas.

(Pl. II, figs. 40, 41).

North Island: 2, 1 valve, l. 21.5, h. 16.2. — 10, 3 sps., l. 15, h. 11.6, another sp.: l. 16, h. 12.5. — 11b, 1 sp., l. 18.3. This species was until now known only from the Australian continent (Lamy 1917). I give a description and figures of the New Zealand form in order to fix its characters for a comparison with the closely allied species (or varieties) *C. carnea, banksi* and *bellula*.

Shell elongate ovate-trigonal, anterior end a little shorter, rounded, posterior end rounded subtruncate, dorsal margins straight, beaks sharply pointed. Lunula and escutcheon distinct, narrow and of equal length. Colour pale fawn with 2 broken rays of brown diverging from the umbonal region to the under margin dividing the surface into 3 subequal areas. Sculpture: strong, concentric, rounded ribs over the whole shell coincident with the growth lines in the middle, more or less deflected at a diagonal line behind the posterior colour ray, and then running obliquely to the growth lines, which are somewhat raised in the hind part of the valve; concentric sculpture evanescent close at the dorsal margins. Interior light rosy, brighter towards the margins; under margin crenelate. Anterior adductor scar pear-shaped, posterior one subcircular. Hinge: left valve with a strong tooth 2 and a thinner 4b, as well as an anterior and 2 posterior thin laterals; right valve with a strong 3b, very thin 3a and 5b and 2 anterior and 1 posterior indistinct laterals.

Lamy (1917) restores Lamarck's genus *Crassatella* which had been rejected in favour of *Crassatellites* Krüger; the latter name was used by Suter.

Concerning the animal it ought to be noted that the mantle edges are, posteriorly above the ends of the gills, coalesced to form a small anal opening; for the remaing part they are quite separated. Beneath the anal foramen the mantle bears sparse and thin tentacles; in its front part, at the sides of the foot, its edges are considerably thickened, no doubt containing mucous glands. There are two pairs of gill plates at each side; the gill axes descend perfectly free without fusing to each other or to mantle. Both pairs of lamellae are well developed, here and there joining by interlamellary connections; otherwise they are entirely smooth. The foot is laterally compressed and contains a long ventral byssus groove. At the mouth two pairs of large labial palps are present.

Cyamiomactra problematica Bernard.

Stewart Island: 36a, some shells, l. 4.5 (incl. var. *truncata* Suter).

Perrierina taxodonta Bernard.

Stewart Island: 36a, many shells, l. 3.5.

Cuna delta (Tate & May).

North Island: 16, many valves, h. 2.5.

Fam. **Carditidae**.

Cardita calyculata (Linné).

North Island: 4, 3 sps., l. 10. — South Island: 29, 6 sps., l. 25. — Auckland Island: 41 (Masked Island), 1 sp., l. 21.

Venericardia purpurata (Deshayes) (=*australis* Lamarck).

North Island: 11b, many sps., l. 23.5. — South Island: 29, 1 sp., l. 35. — For the nomenclature of this species cf. Smith (1915).

Venericardia difficilis (Deshayes).

North Island: 4, 1 sp., l. 15. — 16, 3 sps. + 5 shells, l. 20. — South Island: 29, 6 valves, l. 23.

Venericardia bollonsi Suter.

North Island: 10, 3 valves, l. 6.5. — 18, 3 valves, l. 7. — 25, 1 sp., l. 6.7. — Stewart Island: 32, 1 valve, l. 3.5.

The animal has its mantle margins open except for a point behind, where a small projection from each side join each other medially; to these projections are also loosely attached the ends of the gills, which are simple, have well developed laminae, and freely depending gill axes. The foot is large, much compressed, with a digitiform prolongation in front, and with a median byssus furrow all along its keel, except in the foremost end.

Venericardia lutea (Hutton) (=*zelandica* Deshayes).

North Island: 16, many valves, l. 5. — 18, 2 sps., l. 4.

Fam. **Lucinidae**.

Loripes concinna Hutton.

North Island: 16, many sps., l. 8. — 18, 1 valve, l. 7.

Divaricella cumingi (Adams & Angas).

North Island: 4, 1 valve, l. 10. — 10, 1 valve, l. 19.5. — 16, 5 valves, l. 24. — 18, 1 small sp. — 25, 4 valves, l. 16.

Fam. **Diplodontidae**.

Diplodonta globularis (Lamarck).

Stewart Island: 33, 6 valves, l. 26. — 36a, 1 shell, l. 6.5.

Diplodonta striata Hutton.

North Island: 10, 2 valves, l. 22. — 16, 3 valves, small. — 25, many valves, l. 19. — South Island: 5 sps., l. 19.5.

Diplodonta zelandica (Gray).

North Island: 2, 1 valve, l. 20. — 12, 5 sps., l. 15. — 16, 2 valves, l. 18. — 23, 1 sp., l. 8.5. — Stewart Island: 36a, some sps., l. 15.

Fam. **Thyasiridae.**

Thyasira flexuosa (Montagu).

Auckland Island: 37a, some sps., l. 4.7. — 42, 1 sp., l. 4. — 43, 1 sp., l. 3.

Fam. **Erycinidae.**

Erycina bifurca (Webster).

Stewart Island: 36a, 1 small sp.

Erycina parva (Deshayes).

North Island: 16, 1 small sp. — 26, 7 sps., l. 3.2. — Auckland Island: 37a, some sps., l. 3.4. — In this species the mantle is entirely open, without sutures and siphons, the posterior gill is small and consists of the descending lamella only, which is directed forward. Its edge is fused to the mantle all along, and the upper half is coalesced with the direct lamella of the anterior gill. Both gills were full of fry; the posterior brood-pouch is the space between mantle and the single lamella of the posteror gill, and it extends far beyond the gill posteriorly.

Neolepton antipodum (Filhol).

North Island: 2, 2 small sps., the largest of a yellowish colour with brown fulgurations. — Auckland Island: 40, 2 small sps. — 43, numerous sps., l. 3. — Campbell Island: 45, 5 sps., l. 3.

Neolepton citrinum (Hutton).

Auckland Island: 37a, 3 sps., l. 3.

Neolepton sanguineum (Hutton).

Stewart Island: 36a, many sps., l. 3.

The genus *Neolepton* was established by Monterosato in 1875 on *Lepton sulcatulum* Jeffreys (1859) and some allied species as a subgenus of *Lepton.* It is, however, quite distinct, as will be shown by a comparison of the animals of *Lepton squamosum* (Forbes & Hanley 1853, pl. O, fig. 6) and of the present species.

Bernard (1897) includes in the synonymy of this genus *Lutetina* Munier-Chalmas & Vélain 1876.

The animal of *Neolepton sanguineum* has its mantle margins open in front and ventrally, but coalesced posteriorly to form one branchial and one anal slit both with slightly elevated and densely papillate margins which are tinged with red.

The foot has a long cylindrical sole and shortly projecting hind and front ends. There is no byssal groove.

At each side two demibranchs are present, but the external (here posterior) one is much reduced in size and consists chiefly of the reflected lamella. This is combined with the direct one by means of a few interlamellary junctions. The inner (here anterior) demibranch has both its lamellae well developed, and has no interlamellary connections. Both gills are entirely smooth and have their filaments directed from behind towards front.

Montacuta unidentata n. sp.

(Pl. II, figs. 48—51.)

Shell small, rather solid, elongate-ovate, white, finely concentrically striated. Umbones broadly rounded. Anterior end much longer than (about twice) the posterior one, frontal margin rounded, posterior one subtruncate, antero-dorsal margin straight, basal margin faintly curved. Lunula obsolete, very narrow, most distinct in the left valve. Interior white, smooth, margins simple. Hinge-line narrow, that of the right valve sharply edged but strengthened inside by means of a ridge (=inner margin of hinge plate); no lateral teeth, except a single strong cardinal-like one of a broadly triangular shape, in front of the deep, rounded trigonal ligamental pit; left valve with a short anterior and a posterior lamella fitting inside the right edge, the former gradually rising to an elongate lateral tooth. Resilium short. Adductor scars ovate, the anterior more narrow and elongate than the posterior one. Pallial line simple. Dimensions: L. 2.8, h. 2, crass. 1.4 mm. — Locality: Stewart Island: 36a, numerous valves.

Suter (1913) described a *Montacuta triquetra* from Port Pegasus, which differs essentially in its shape, being more triangularly elevated.

Montacuta tellinula n. sp.

(Pl. II, figs. 52, 53; text-figs. 20, 21.)

Shell ovate, thin, compressed, covered with a thin, light yellowish-brown cuticula; umbones small, papilliform, smooth, behind the middle. Sculpture: close concentric, somewhat irregular striae. Colour grayish-white with fine white stripes radiating over the whole shell. Interior smooth, white with the radiating stripes shining through; margins smooth, thin. Mantle line entire; adductor scars subequal, (the anterior a little longer), ovate. Hinge with one large projecting (lateral) tooth in each valve, the left one crest-like, and an indistinct knob-like posterior lateral behind the perpendicular ligament lodged in a deep hole under the umbones. Dimensions: L. 5.2, h. 4.2, crass. 1.9 mm. — Locality: North Island: 5, several sps.

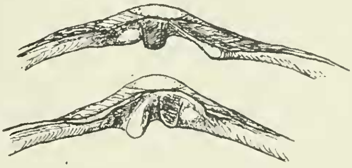

Fig. 20. Hinge of *Montacuta tellinula* n. sp.

The animal (text-fig. 21) has a long pedal slit of the mantle, behind that a long suture and then a single opening without siphons. Here in the posterior end the mantle edges are finely scalloped by very small distant papillae. There are 2 gills on each side extending far upwards to behind the ligament, the posterior (outer) one with a much reduced direct lamella; they are smooth and united in their lower ends, which are, further, fused with the mantle. The inner (anterior) gill has its reflected lamella nearly as high as the direct one and for the greater part connected with it. The foot is large, compressed, and has a well developed byssus groove. The heart lies in the up-

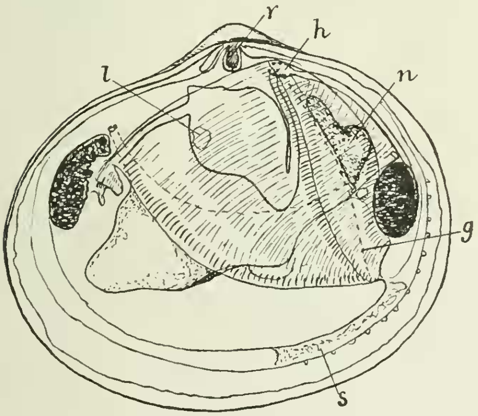

Fig. 21. Anatomy of *Montacuta tellinula* n. sp. *g* gill axis: *h* heart; *l* opening of liver duct into stomach; *n* nephridium; *r* ligament; *s* suture of mantle margins.

permost end of the pericard a little behind the ligament. The nephridia have their outer sacs dilated along the sides of the pericard.

Rochefortia reniformis Suter.

North Island: 11d, 2 sps., l. 5.2. — 17, 1 sp., l. 8. — 19, many sps., l. 6. — 23, 2 sps., l. 6. — 28, 1 sp., l. 7. — Auckland Island: 43, 1 valve, l. 5.

Fam. **Kellyidae.**

Kellya suborbicularis (Montagu).

North Island: 2, 1 sp, l. 8. — 24, 1 shell, l. 6.2. — South Island: 29, 7 sps., l. 13.

Fam. **Lasæidæ.**[1]

Lasaea minutissima (Iredale).

(*L. miliaris* Suter, non Philippi).

Stewart Island: 33, en masse, l. 3. — Auckland Island: 37, en masse, l. 3.5. — 38, many sps., l. 3.5. — Campbell Island: 44, some sps., l. 3. Oliver (1923) maintains the identity of *L. miliaris* of Suter and *Modiolarca minutissima* of Iredale as well as the specific distinctness from *L. miliaris* of Philippi.

Fam. **Galeommatidae.**

Spaniorinus zelandicus n. sp.

(Pl. II, figs. 54, 55; text-figs. 22, 23.)

Shell small, elongate-ovate, thin, a little shining, slightly gaping in front, inflated in the median part; umbones papillate, submedian; anterior half produced, rounded, posterior one a little higher, truncately rounded at the end; under margin faintly convex, almost straight in the middle. Colour white; a very thin yellowish cuticula present. Sculpture consisting of fine lines of growth only. Interior white with smooth and sharp margins; anterior adductor scar elongated with acuminate upper end, posterior one a little lower situated, rounded. Hinge with a single cardinal tooth in each valve, that of the right valve hook-like, the left one broadly triangular. Ligament internal in a long oblique groove.

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[1] Cf. Cossmann & Peyrot 1911.

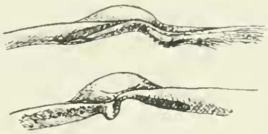

Fig. 22. Hinge of *Spaniorinus zelandicus* n. sp.

The animal (text-fig. 23) has thin mantle edges which are, as a very narrow brim, reflected upon the shell margin. The mantle edges are open in front and backwards to about the middle of the shell; for the greater part of this distance the edges are smooth, but above the pedal opening they are furnished with small scattered papillae. Behind the foot a long suture follows, which occupies the whole posterior end of the animal. It is pierced by a single perforation; the small and narrow anal siphon, which has only slightly raised margins. Along the posterior margins of the mantle numerous small tentacles extend as far as above the adductor. There are two gill plates on each side coalesced in their lower ends with each other and the mantle. They extend far dorsally behind the umbones. They are smooth, and both have well developed reflected lamellae. The posterior (external) gill is the narrower one, and its reflected lamella extends beyond the gill axis behind; here it is covered by a lappet of the mantle, produced by the tentacular muscles, which are unusually strongly developed at this point. The labial palps are large, triangular, and distinctly furrowed. The foot is very large, compressed, and has a byssus groove posteriorly.

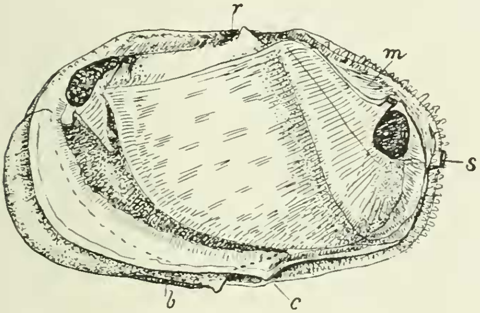

Fig. 23. Anatomy of *Spaniorinus zelandicus* n. sp. *b* byssus groove; *c* coalescing point of the mantle margins; *m* tentacular muscles; *r* ligament: *s* anal siphon.

Dimensions: L. 6, h. 3.8, crass. 2 mm.

Localities: North Island: 16, 1 right valve, l. 5. — Auckland Island: 43, 1 sp., l. 6.

This family and genus were not hitherto represented in the

New Zealand faunistical literature. *Spaniorinus* is nearly akin to *Solecardia* Conrad (=*Scintilla* Deshayes) in shape, the long postpedal suture, the small anal siphon and the papillated mantle margins. But it differs essentially in its hinge, which entirely lacks lateral teeth and often, as in the present species, also the small cardinals (3a, 4b), which are present in other species of *Spaniorinus*. According to Cossmann & Peyrot (1911), the genus has a geological range from the Eocene to the Miocene epoch.

Fam. **Unionidae.**

Diplodon menziesi (Gray).

North Island: Lake Takapuna, Auckland, at the shore, 25/12 1914, 3 sps., l. 73.

Fam. **Tellinidae.**

Tellina deltoidalis Lamarck.

North Island: 10, 1 sp., l. 20. — 17, 2 sps., l. 29. — Napier, inner harbour, muddy sand, 29 1 1915, some sps., l. 46. Iredale (1915) proposes a new name, *liliana*, for this species, which is said to be distinct from the Australian *T. deltoidalis* of Lamarck; but which are the differences?

Tellina eugonia Suter.

Off Bard Island, 35 fms, mud, 17/12 1914, 1 sp., l. 29.

Tellina huttoni Smith.

North Island: 16, 1 valve, l. 11.5. — 25, many sps., l. 17. — South Island: 29, 1 sp., l. 12.5. — Stewart Island: 32, 1 sp., l. 10.5.

Tellina disculus Deshayes.

South Island: 29, 1 sp., l. 25.

Tellina glabrella Deshayes.

Auckland Island: 42, many sps., l. 12.

Leptomya lintea (Hutton).

North Island: 10, 1 sp., l. 15. — South Island: 29, 3 sps., l. 19. — Auckland Island: 39, 5 sps., l. 14. — 41, (Masked Island), 1 sp., l. 8. — 43, 1 sp., l. 10.

Fam. **Amphidesmatidae.**

Amphidesma gaimardi (Deshayes)
(=*Mesodesma subtriangulatum* Gray, by Suter).

North Island: 17, many sps., l. 39. — Hokianga, the coast, in sand, 6/1 1915, many sps., l. 37.

Amphidesma (Mesodesma) australe (Gmelin).

North Island: 12, en masse, l. 45 (var. *aucklandicum* v. Martens). — South Island: 30, 2 sps. — Stewart Island: 31, many valves, l. 57. — 33, 1 sp., l. 30. — Auckland Island: 39, en masse, l. 83 (var. *aucklandicum*). — 42, 4 valves, l. 50.

Fam. **Mactridae.**

Mactra scalpellum Reeve.

North Island: 16, many valves, l. 18.5. — 25, many sps., l. 19.

Mactra discors Gray.

North Island: 25, many valves, l. 18.5.

Spisula ordinaria (Smith).

North Island: 25, 9 sps., l. 14.

Spisula aequilateralis (Deshayes).

North Island: 5, 1 valve, l. 56.

Zenatia acinaces (Quoy & Gaimard).

North Island: 13, 1 sp., l. 57.

Fam. **Veneridae**.

Dosinia subrosea (Gray).

North Island: 11b, 1 small sp. — 13, 3 sps., l. 36.

Macrocallista multistriata (Sowerby).

North Island: 10, 2 sps., l. 18. — 16, many sps., l. 17.5. — South Island: 29, 1 sp., l. 22.5. — Stewart Island: 35, 3 sps., l. 35.

Antigona zelandica (Gray) (=*Cytherea oblonga* Hanley).

North Island: 16, 1 valve, l. 7. — South Island: 29, 3 sps., l. 63. — Stewart Island: 32, many valves, l. 18.

Chione stutchburyi Wood.

North Island: 8, 4 sps., l. 35. — 12, many sps., l. 43. — 15, 2 sps., l. 20. — 17, 1 sp., l. 12. — 25, 1 valve, l. 16.5. — Napier, inner harbour, muddy sand, low water, 29/1 1915, some sps., l. 21. — South Island: 29, 1 sp., l. 30. — Stewart Island: 31, many sps., l. 47. — Auckland Island: 37, many sps., l. 55. — 39, many sps., l. 66. — 42, many sps., l. 72.

Chione spissa (Deshayes) (=*crassa* Quoy & Gaimard).

Auckland Island: 37a, 1 sp., l. 17. — 43, many sps., l. 35. 43, north arm of Carnley Harbour, 35 fms, mud, 30/11 1914, 1 sp., l. 30.

Chione mesodesma (Quoy & Gaimard).

North Island: 5, 1 valve, l. 23. — 11a, some valves, l. 23. — 11b, 6 sps., l. 16. — 16, many sps., l. 21. — 14, 1 sp., l. 20. 22, 2 old valves. — South Island: 29, many sps., l. 26. — Stewart Island: 36a, some small sps.

Paphia intermedia (Quoy & Gaimard).

South Island: 29, 2 sps., l. 42. — 30, 5 sps., l. 14. — Stewart Island: 31, 3 sps., l. 41. — Auckland Island: 37a, 3 valves, l. 35. — 39, 5 sps., l. 62. — 40, many sps., l. 58. — 41 (Masked Island), 4 sps., l. 44. — 41 (Figure 8 Island), 1 sp., l. 29. — 42, 2 sps., l. 63. — Campbell Island: 44, 1 sp., l. 50.

Protothaca crassicosta (Deshayes) (=*Paphia costata* Quoy & Gaimard).

North Island: 15, 3 valves, l. 30. — 23, 5 sps., l. 16. — South Island: 30, 2 sps., l. 21.

Venerupis reflexa Gray.

North Island: 23, 1 sp., l. 18. — 26, 5 sps., l. 27. — 28, 9 sps., l. 25.

Venerupis siliqua Deshayes.

North Island: 28, 5 sps., l. 23. — South Island: 29, 2 sps., l. 32.

Fam. **Cardiidae.**

Cardium (Protocardia) pulchellum Gray.

North Island: 7, 1 sp., l. 15. — 10, 8 sps., l. 17.5. — 16, many sps., l. 18. — 25, 1 sp., l. 16. — 3, some valves, l. 20. — South Island: 29, 4 sps., l. 22.5. — Stewart Island: 33, 1 valve, l. 18. — Campbell Island: 1 sp., l. 22.

Fam. **Garidae.**

Gari (Psammobia) lineolata (Gray).

North Island: 16, 1 valve, l. 23. — 25, many sps., l. 36. — Stewart Island: 36a, 3 valves, l. 82.

Gari (Psammobia) stangeri (Gray).

North Island: 8, 1 sp., l. 64. — South Island: 29, many valves, l. 56, + 1 sp., l. 20.

Gari (Psammobia) zelandica (Deshayes).

North Island: 10, 1 shell, l. 13.5. — 11b, 2 sps., l. 25. — Stewart Island: 35, 1 valve, l. 30.

Soletellina nitida (Gray).

North Island: 16, 1 valve, l. 45.

Fam. **Corbulidae.**

Corbula zelandica Quoy & Gaimard.

North Island: 10, many sps., l. 13. — 11b, 3 sps., l. 14. — 16, 5 sps., l. 11.5. — 17, 1 sp., l. 12. — 22, 1 old valve. — 23, 2 sps., l. 13. — South Island: 29, many sps., l. 14. — Auckland Island: 41 (Masked Island), 5 sps., l. 12.

Fam. **Saxicavidae.**

Saxicava artica (Linné).

North Island: 4, 2 sps., l. 10.5. — 9, some sps., l. 19. — 10, 2 sps., l. 7. — 14, 1 sp., l. 6. — 16, many sps., l. 9. — 17, 4 sps., l. 12. — 18, 1 valve, l. 8.5. — 28, many sps., l. 12. — off Bare Island, 35 fms, clayish mud, 17/12 1911, 1 sp., l. 10.5. — South Island: 29, 6 sps., l. 21. — Stewart Island: 35, 1 sp., l. 11. — Auckland Island: 41 (Masked Island), 1 sp., l. 13. — 43, 4 sps., l. 9. — Campbell Island: 45, many sps., l. 5.5.

Fam. **Pholadidae.**

Pholadidea spathulata (Sowerby).

North Island: 11d, 1 sp., l. 50.

Pholadidea tridens (Gray).

North Island: 17, 1 sp., l. 22.

Barnea similis (Gray).

North Island: 28, numerous sps., l. 80.

Fam. **Thraciidae.**

Thracia transenna Suter.

North Island: 19, 1 sp., l. 16.

Thracia vitrea (Hutton).

North Island: 25, 1 valve, l. 22. — Auckland Island: 43, 2 sps., l. 6.5. — 42, 1 sp., l. 8.5.

Fam. **Periplomidae.**

Cochlodesma angasi (Crosse & Fischer).

Stewart Island: 33, 1 valve, l. 57.

Fam. **Myochamidae.**

Myodora antipodum Smith.

North Island: 16, many valves, l. 6.

Myodora novae-zealandiae Smith.

North Island: 16, many valves, l. 5.5.

Myodora pandoriformis (Stutchbury).

North Island: 4, 1 valve, l. 9.5.

Myodora striata (Quoy & Gaimard).

North Island: 25, 1 valve, l. 18. — South Island: 29, 4 sps., l. 34.

Fam. **Cleidothaeridae.**

Cleidothaerus (Chamostrea) albidus (Lamarck).

North Island: 24, 2 sps., h. 60.

Fam. **Verticordiidae.**

Verticordia setosa Hedley.

North Island: 16, 3 valves, l. 4.5.

Fam. **Cuspidariidae.**

Cuspidaria fairchildi Suter.

North Island: 18, 1 shell, l. 11.

Cuspidaria trailli (Hutton).

North Island: 16, 1 sp., l. 21, + 1 valve.

Addenda.

Bouvieria ornata (Cheeseman), p. 51.

Suter refers this species to *Berthella* evidently on account of its smooth-edged jaw-elements. Like *Berthella*, too, it has a relatively small shell. But the radula characters undoubtedly place it in *Bouvieria*. Externally it differs from *B. aurantiaca* and all Berthellas in the position of anus somewhat in front of the posterior end of the gill mesenterium.

Bergh (1902) certainly had another species at hand, when he described a specimen from Rarotonga, designated as *Pleurobranchus ornatus* Cheeseman, since it differed in serrated jaw-elements.

Marinula parva (Swainson), p. 55, var. *striata* n.

The present specimens differ from the typical *M. parva* (from Tasmania) in being regularly striated spirally, at least in their upper whorls. This character being exceptional within the genus, the form in question deserves to be recognized as a separate variety *striata* (text-fig. 24).

Suter (1913) gives some particulars of the radula of *M. parva*. They may be completed by the following facts concerning the present form: Length and breadth of radula, 0.95 and 0.36 mm resp.; series of teeth 138; teeth in one series 270. Median tooth with a small simple cusp; laterals 1—109 with an entocone; 110—114 with an additional ectocone; subsequent (marginal) teeth, by addition of ectocones with 4 denticles, and outermost ones with 5. All teeth extremely small: laterals little more than 1 μ in breadth (text-fig. 24).

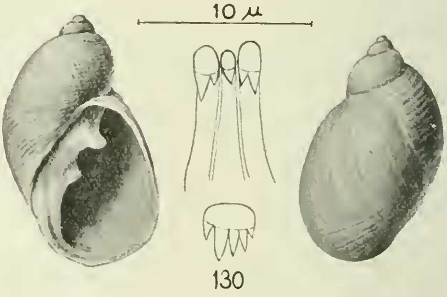

Fig. 24. *Marinula parva* Swainson, var. *striata* n. Auckland Isl., × 6, with teeth from its radula (median, two laterals, one marginal). × 2300.

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Explanation of the Plates.

Plate I.

Fig. 1. Lepidopleurus inquinatus Reeve, half of a median valve. Campbell Island. × 10.
Fig. 2. The same, Stewart Island. × 10.
Fig. 3. Gibbula mortenseni n. sp. × 5.5.
Fig. 4. Calliostoma onustum n. sp. × 6.
Figs. 5—8. Rissoa achatina n. sp., different colour variations. × 8.5.
Fig. 9. The same, operculum. × 20.
Figs. 10—11. Rissoa semen n. sp. × 20.
Fig. 12. Rissoa erosa n. sp. × 20.
Fig. 13. The same, operculum. × 20.
Fig. 14. Rissoa cylindrella n. sp. × 20.
Fig. 15. Cerithium invaricosum n. sp. × 3.
Fig. 16. Cerithiopsis dirempta n. sp. × 15.
Fig. 17. Cerithiopsis trizonalis n. sp. × 15.
Fig. 18. Seila dissimilis Suter. × 12.
Fig. 19. Caecum suteri n. sp. × 20.
Fig. 20. Lamellaria verrucosa n. sp. Nat. size.
Fig. 21. The same, from below. Nat. size.
Fig. 22. The same, shell, somewhat enlarged.
Fig 23. Turbonilla campbellica n. sp. × 6.
Fig. 24. Mitra mortenseni n. sp. × 3.
Fig. 25. Prosipho chariessa Suter. × 10.
Fig. 26. Trophon mortenseni n. sp. × 4.
Fig. 27. The same, operculum. × 10.
Fig 28. Marginella coma n. sp. × 6.
Fig. 29. Heterocithara mediocris n. sp. × 10.
Fig. 30. Runcinella zelandica n. sp., from the right. × 25.
Fig. 31. The same, anterior end from below. × 25.
Fig. 32. The same, from above. × 25.
Fig. 33. Alloiodoris lanuginata Abraham, from above. × 1.5.
Fig. 34. The same, from below. × 1.5.
Fig. 35. Cuthona zelandica n. sp. × 4.5.

Plate II.

Figs. 36—38. Chlamys campbellicus n. sp. × 1.5.
Fig. 39. The same, sculpture. × 9.

Fig. 40. Crassatella aurora Adams & Angas, from exterior. × 2.5.
Fig. 41. The same, from interior, another valve. × 2.5.
Fig. 42. Kidderia campbellica n. sp., left valve, from exterior. × 4.
Fig. 43. The same, right valve from interior. × 4.
Fig. 44. The same, dorsal view. × 4.
Fig. 45. Kidderia costata n. sp., left valve from exterior. × 10.
Fig. 46. The same, right valve from interior. × 10.
Fig. 47. The same, hinge of left valve.
Figs. 48—51. Montacuta unidentata n. sp. × 10.
Figs. 52—53. Montacuta tellinula n. sp. × 6.
Figs. 54—55. Spaniorinus zelandicus n. sp. × 5.
Fig. 56. Anatomy of Kidderia campbellica n. sp.
Fig. 57. Anatomy of Neogaimardia rostellata Tate.
Fig. 58. Fossarus ovatus n. sp. × 12.
Fig. 59. Fossarus conicus n. sp. × 12.
Fig. 60. Fossarus productus n. sp. × 12.
Figs. 61—62. Fossarus hyalinus n. sp. × 12.

a opening of liver duct into stomach; *b* byssus gland; *c* cerebral ganglion; *e* embryo in the gill; *f* pedal ganglion; *g* gonad; *l* liver; *L* ligament; *m* pedal gland; *n* nephridium; *p* pericard; *r* margin of reflected lamella of the inner gill; s_1 pedal slit; s_{11} branchial slit; s_{111} anal slit; *t* tentacle; *v* visceral ganglion.

24—5—1924.